



Vol. 8. No. 19. }
WEEKLY. }

BALTIMORE, DECEMBER 19, 1885.

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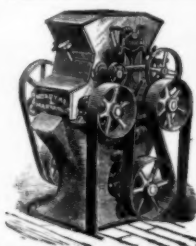
Works, 413 to 421 Race St., Cor. of Crown.

Office & Store, 137 Market St., Philadelphia.

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Manufacturers' Mill Supplies

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Milling Outfits for Flour and Meal.

WE MAKE ROLLS AND PORTABLE MILLS COMPLETE.

Manufactory Established in 1851.

Pamphlets with Prices Mailed Free.

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MORSE, WILLIAMS & CO.

Successors to
CLEM & MORSE

Manufacturers and Builders of HYDRAULIC STEAM,
BELT and Hand-Power, PASSENGER and FREIGHT

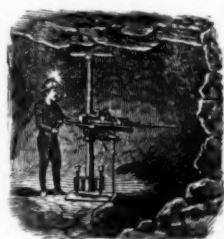
ELEVATORS

With most approved Safety Devices,
Dumb-Waiters, Automatic Hatch-Doors, &c.

Office: 411 CHERRY STREET,

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Branch Office, 108 Liberty Street, NEW YORK.



"ECLIPSE"

ROCK DRILLS, AIR COMPRESSORS,

Machinery for Tunneling, Grading, Mining, Quarrying, etc.

TEN COMPLETE TUNNELING PLANTS FURNISHED FOR SOUTH PENNA. RAILROAD, PA.

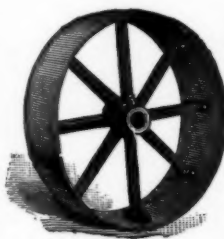
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INGERSOLL ROCK DRILL CO., 10 Park Place, N. Y.

MORTON, REED & CO., Agents, Baltimore.



"STRAIGHT LINE"



**THE MEDART PATENT
WROUGHT * RIM * PULLEY.**

OVER 300,000 NOW IN USE. THE LIGHTEST, STRONGEST, BEST BALANCED and CHEAPEST in the WORLD.

Whole Pulleys from 9 inches to 120 inches diameter. Split Pulleys from 12 inches to 120 inches diameter. All widths of face up to 36 inches, crowning or straight, with single, double or triple sets of arms. Also Tight and Loose Pulleys. Absolute satisfaction guaranteed.

SHAFTING, HANGERS, COUPLINGS, &c.

MEDART PATENT PULLEY CO., Stores: 99 to 101 W. Second St., Cincinnati. 1206 TO 1214 N. MAIN STREET, ST. LOUIS, MO. 24 & 26 S. Canal St., Chicago.

J. A. J. SHULTZ, President.

B. C. ALVORD, Secretary.

SHULTZ BELTING COMPANY, ST. LOUIS, MO.

Manufacturers of Shultz Patent Fulled Leather Belting, Lace and Picker Leather.

OUR BELTING is made of Leather, tanned on the surfaces only; the interior (which is the fibre and strength of the hide) is not tanned, but Rawhide fulled and softened by our patent process. Our belting is more pliable, and hugs the pulley better and transmits more power than any other Belt. It does not pull out at the laceholes or rivets. It stretches less than any other Belt. It works equally well for the largest Driving Belts or for the fastest running machinery and smallest pulleys. OUR LACE LEATHER is made of Rawhide, by our patent process, without any tanning and is stronger and will wear better than any other. WE ALSO MAKE THE BEST PICKER LEATHER AND BELT GREASE IN THE COUNTRY. Satisfaction guaranteed.

Southern Agents—FRED. N. OGDEN, New Orleans, La.

J. H. COFFIN & CO., Memphis, Tenn.

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WILLIAM READ & SONS,

WHOLESALE AND
RETAIL DEALERS IN

Guns, Military Goods and Ordnance Stores,

107 WASHINGTON STREET, BOSTON, MASS.

Sole Agents for America for the Celebrated

ROYAL MAIL

Bicycles and Tricycles.



LIGHT ROADSTER—36 LBS.

FRED RUSS COOK,
The Noted Californian Wheelman and Long-Distance Rider.
Decides in favor of Royal Mail OVER ALL OTHERS for his own mount, and for orders which his friends asked him to fill with the best wheel he found while East he selects Royal Mails!!

MESSRS. WM. READ & SONS:
Gentlemen, after a careful examination of the different makes at the late meetings, I consider the Royal Mail superior to any other in the market. Please forward at once these orders entrusted to my selection by friends, for the best wheel I found, and send me a 54-inch for myself, and also a Racer.

Yours truly,
San Francisco, **FRED RUSS COOK.**

Good Agents Wanted in Every City for the ROYAL MAIL.

SEND STAMP FOR CIRCULAR BEFORE PURCHASING A MOUNT.



Winning Tricycle "Royal Mail"

Won the Records for 1884 for
1-4, 1-2, 3-4, 1, 3, 4, 5 miles!

Especially advantageous for country roads, as, the front wheel being on one side, the rough horse-path and stones and obstacles are easily avoided. Easy of access, especially for ladies. Very easy running and comfortable.

—AGENTS FOR—

W. & C. SCOTT & SONS, London, Birmingham.

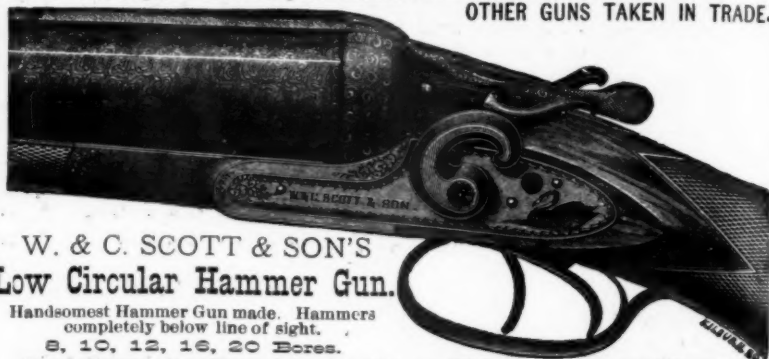
WE TAKE OTHER
Guns in Trade.



W. & C. SCOTT & SON'S
Block Safety Hammerless,

With Crystal Apertures showing position of hammers at a glance. Independent strikers. Locks can be taken off, as on any old-time gun, 20, 16, 12, 10 and 8-bore. We are meeting a great demand for these guns. Send Stamp for Circulars and Second-Hand List.

OTHER GUNS TAKEN IN TRADE.



W. & C. SCOTT & SON'S
Low Circular Hammer Gun.

Handsome Hammer Gun made. Hammers completely below line of sight.
8, 10, 12, 16, 20 Bore.

Send Stamp for Circulars and List of High Grade Second-Hands.
Also All Other Makes: GREENER, LANG, FOREHAND & WADSWORTH, HARRINGTON & RICHARDSON, COLT, PARKER, DAVIS, L. C. SMITH, Etc., Etc.
RIFLES, REVOLVERS, SHELLS, WADS AND ALL SUPPLIES.
Send Stamp for our Circulars and List of High Cost Second-Hand Guns taken in Trade.

Wiswell Ore Pulverizer and Amalgamator Combined.

The cost of this Mill is much less than any other machine of sufficient capacity to do the same amount of work.

It requires less power to run it, (10-horse being sufficient.)

The wear and tear of the Mill is much less than any other Quartz Mill doing the same amount of work, and the quality of the work done by it is greatly superior to work done in any other Quartz Mill now in use.

It crushes to a uniform fineness and makes no slimes, so that no sizing is required for concentration.

The Mill is equally well adapted to crushing and pulverizing of all classes of ores, either for amalgamation or concentration, and will pulverize and amalgamate from one-half to one ton per hour, according to character of ore and fineness of screens.

With ordinary care there is no loss of mercury by flouing, and consequent loss of gold, as in most other Mills where mercury is used in the Mill.

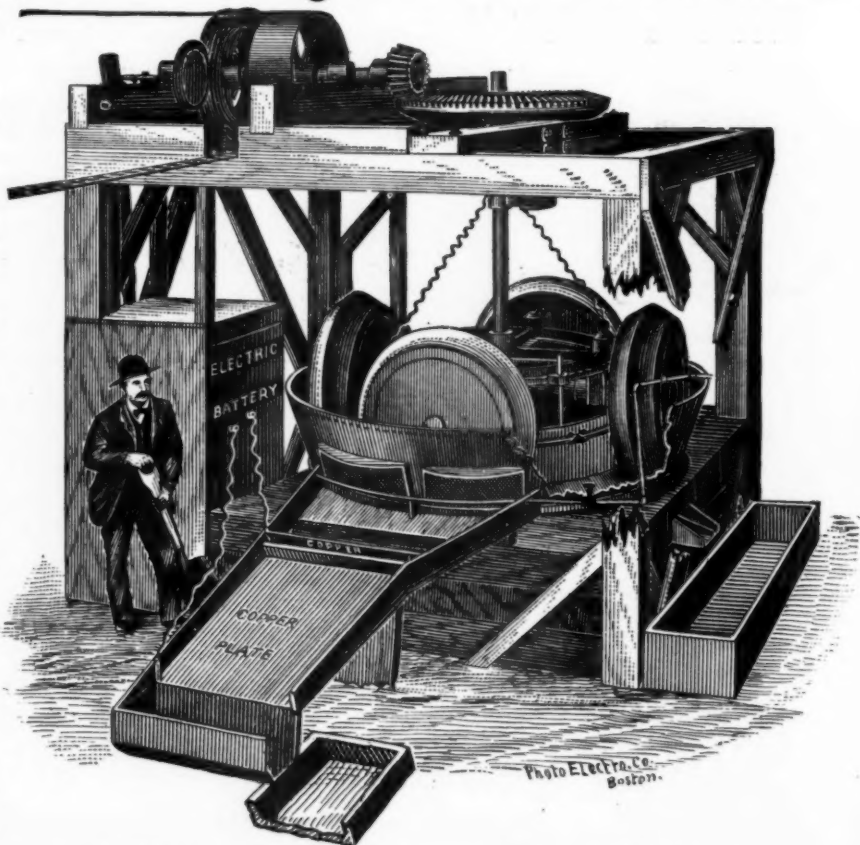
Amalgamation is carried on in the same operation with the crushing. The mercury is placed in the Mill in quantities varying from 10 to 40 pounds.

The application of electricity to the Mill for the purpose of cleaning and keeping the mercury alive has been to a very large extent superseded by the invention and introduction of the Mercury Trap in the Mill for the purpose of drawing off the mercury when charged with gold or on the slightest indication of flouing. By this ingenious device the mercury can be changed as often as desired without loss of time in either crushing or amalgamating. By opening this Trap the amalgam is discharged from the Mill in three minutes, and clean mercury introduced in its place.

To those familiar with running a Gold Mill this latter advantage will be greatly appreciated; in fact, it gives the mill-man full control of his work.

This Mill has been on exhibition at the foundry of Messrs. Bisbee & Endicott, at Chelsea, Mass., for the past 18 months, a good part of the time in active operation, and we have treated the most rebellious ores from many mining districts with most satisfactory results to the parties concerned.

The past year we have sold many Mills, which may be found in Michigan, North Carolina, Dakota, Montana, Idaho, Colorado, California, Mexico, Nova Scotia, etc. All those in operation are giving the most perfect satisfaction, as testimony will prove, and we will take pleasure in referring to any one of these on application.



We Furnish a Complete Mill for \$2,500, Delivered on Board Cars.

WISWELL ELECTRIC MINING MACHINERY COMPY,

A. A. REEVE, Treasurer.

4 POST-OFFICE SQUARE, BOSTON.

AMERICAN SUPPLY COMPANY,

Formerly Myron Fish & Co., of Valley Falls, R. I., and Kendrick Loom Harness Co., of Providence, R. I.

—MANUFACTURERS OF—

LOOM HARNESS AND REEDS,

Oak Belting, Lace and Picker Leather, and Dealers in Supplies for Cotton, Woolen and Silk Mills.

Agents for Joseph Noone's Sons'
Roller, Slasher & Clearing Cloths.

—Agents for—
RODDICK'S PATENT IMPROVED OIL CANS.

Calf, Sheep and Lamb Roller Skins, and Roll Covers' Tools.



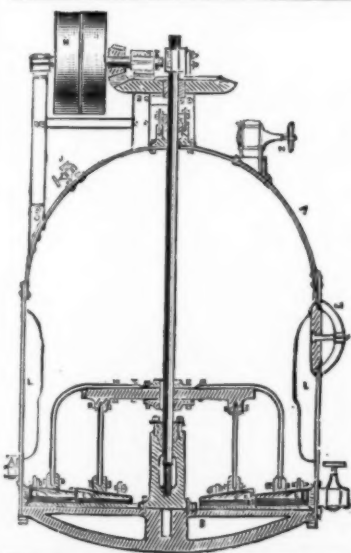
WE HAVE
Unequalled Facilities for Furnishing
Shuttles & Heddle Frames,
WIRE HEDDLES & WIRE GOODS
Of all Descriptions.

—Special Notice to Worsted and Silk Mills.—

We Manufacture both Worsted and Cotton Machine-Knit Mail Harness for Weaving Fine Worsted and Silk Goods. Also a Full Line of Supplies for Jacquard Looms.

Office and Salesrooms, 10 Exchange Place, Providence, R. I. —FACTORIES:— PROVIDENCE and VALLEY FALLS, R. I.

A. D. LOCKWOOD, Pres. JOHN KENDRICK, Vice-Pres. MYRON FISH, Treas. JOHN A. CARTER, Sec. JOSEPH H. KENDRICK, Gen'l Agent.

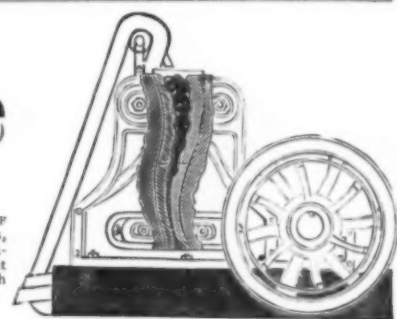


THE MEECH GOLD AND SILVER ORE Disintegrating Machine

The Only Method for Preparing the Ore for Amalgamation.

Disintegrating, Decomposing and Desulphurizing the ore under a HIGH TEMPERATURE and PRESSURE OF STEAM HEAT, with chemical action and attrition, dissolves and breaks up the chemical combination in the ores, individualizing, cleaning and separating the atoms of metal from the gangue, perfectly freeing them for amalgamation in combination with the MEECH AMALGAMATION MACHINE and process, (being the greatest combination of Amalgamation known,) will successfully extract 90 per cent. of the metal from rebellious ores, such as Sulphurets, Sulphates, Sulphides, Chlorides, Bromides, Oxides, Tellurides, &c.

—We desire business correspondents in every mining district in the United States.



THE MEECH CRUSHER & PULVERIZER.

This Machine will CRUSH AND PULVERIZE GOLD AND SILVER ORES to 20, 40, and 60 mesh fine, and from 20, 40 and 60 tons per day. The principles of this machine, making it superior to all others, are the peculiar concave and convex shape of the jaws, with concave and convex projections, which breaks, crumbles, stamps and pulverizes the ore with less power, wear and tear, than any other machine. MANUFACTURED BY

MEECH & CO., Cleveland, Ohio.

We will contract to erect the Meech Plant of Mining Machinery for successfully treating all grades of gold and silver ore.

BARNEY & KILBY, SANDUSKY, OHIO.

BUILDERS OF THE NEUERT PATENT

Automatic Cut-off and Adjustable Cut-off ENGINES.

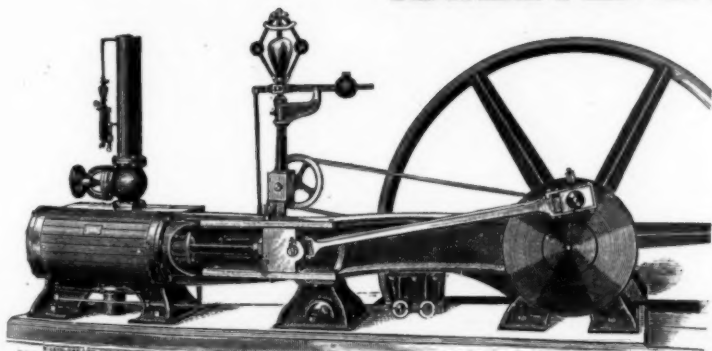
MILL BUILDERS and FURNISHERS.

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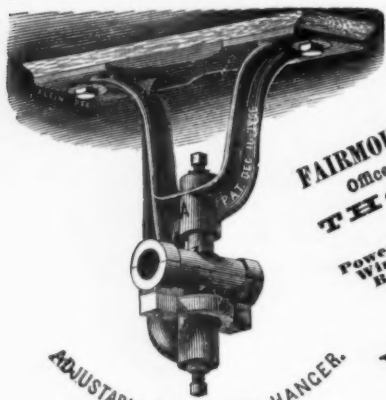
Cleveland, Ohio, May 5, 1885.
GENTLEMEN—The new Automatic Engine we purchased of you gives entire satisfaction, and so far has given every result claimed for it. Our engineer, a practical mechanic, thinks it is the best engine he ever saw. Yours respectfully,
COCHRAN & LANE.

Bellefontaine, Ohio, Nov. 13, 1884.

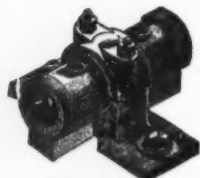
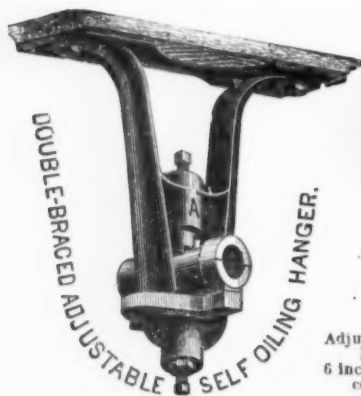
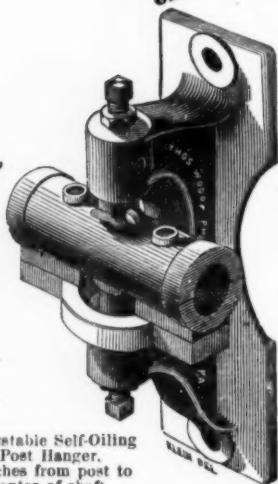
GENTLEMEN—In reply to yours of the 8th, we take pleasure in saying that since you overhauled and programmed our mill and put in the Stevens Rolls, we have had what we never before had, i. e. a mill that is entirely satisfactory in the matter of separations and quality of work done. We have also been able to turn out more flour than we expected, having for the past month made an average of 360 bbls. per day. Our millers are as highly pleased as we are, and say it is not half the trouble to keep the grades uniform as it was heretofore. Wishing you continued prosperity, we are,
Yours truly,
COLTON BROS.



SEND FOR ILLUSTRATED ENGINE CATALOGUE.



ADJUSTABLE SELF-OILING HANGER.

Ball and Socket
Self-Oiling Pillow Block.DOUBLE-BRACED ADJUSTABLE
SELF OILING HANGER.Adjustable Self-Oiling
Post Hanger.
6 inches from post to
center of shaft.

FAIRMOUNT MACHINE WORKS.
Office, 2106 Wood St., Philadelphia.
THOMAS WOOD,
Manufacture as Specialties

Power Looms, Patent Robbin or Quill
Winding Machines, Plain and Presser
Hemming Machines, Dyeing, Sizing,
Warp Spinning, Fulling and Cal-
endering Machines.

WARPING MILLS,
16, 18 and 20 yards Circumference,
WITH IMPROVED HECKS.
SHAFTING,
With Patent
ADJUSTABLE SELF-OILING HANGERS,
8, 10, 12, 15, 18, 20, 24 and 30 in. drop.

Also WALL, POST AND GIRDER HANGERS.
Pulleys, from 4 inches to 10 feet in diameter.
PATENT FRICTION PULLEY.
Pulleys in two parts, any size required.
PATENT HOISTING MACHINES.
Oil Presses for Lard, Fish and Paraffine.

Special Driving,
such as Angular, Muley, and Gallows Driving,
furnished for any position
where possible to transmit power by belts.
PULLEYS from 4 inches to 10 feet in diameter.

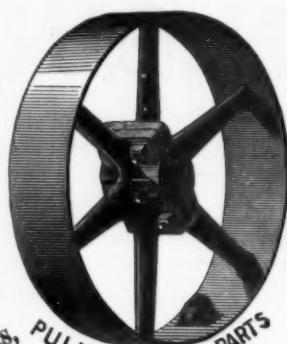
Why use old style Bearings, that require oiling
every day, when you can get Bearings at less cost
that on y require oiling once in Six Months, and
thus save oil and labor enough to pay for the bear-
ings in use. Test the matter for yourselves; a
trial always secures the trade.

ADDRESS.

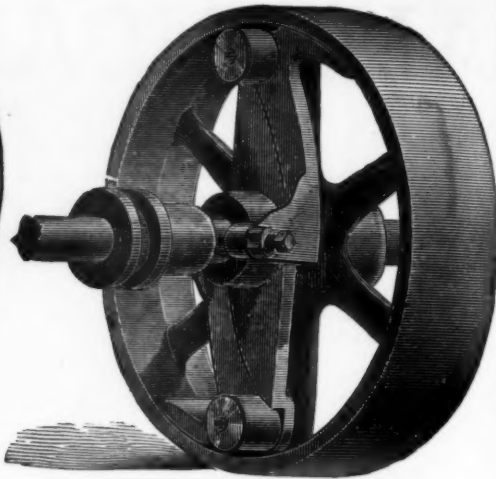
THOS. WOOD,

Office, 2106 Wood St.

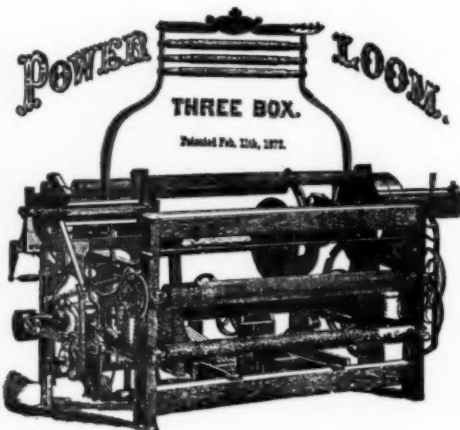
PHILADELPHIA, PENNA., U. S. A.



PULLEY IN TWO PARTS

**PATENT FRICTION PULLEY.**

Simple, reliable and very durable,
Suitable for any kind of driving, they
serve equally well as driver or driven.

**POWER LOOM.**
THREE BOX.
Patented Feb. 25th, 1871.

THE Geo. L. Squier Mfg. Co.

— BUFFALO, N. Y. —

Sole Manufacturers of the Celebrated

American Cane

AND

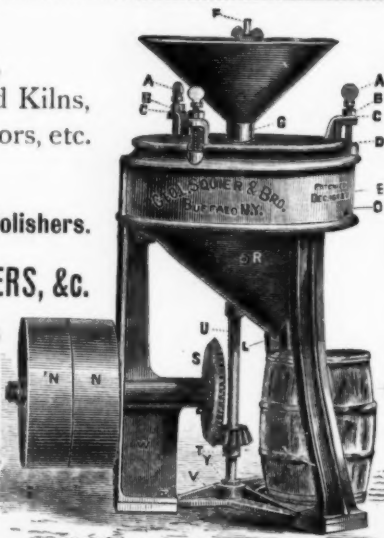
Rice Machinery

Eighty Sizes of Cane Mills,
Vacuum Pans and Pumps,
Bone Coal Filters and Kilns,
Mixers, Centrifugals, Evaporators, etc.

Rice Threshers, Hullers,
Separators and Polishers.

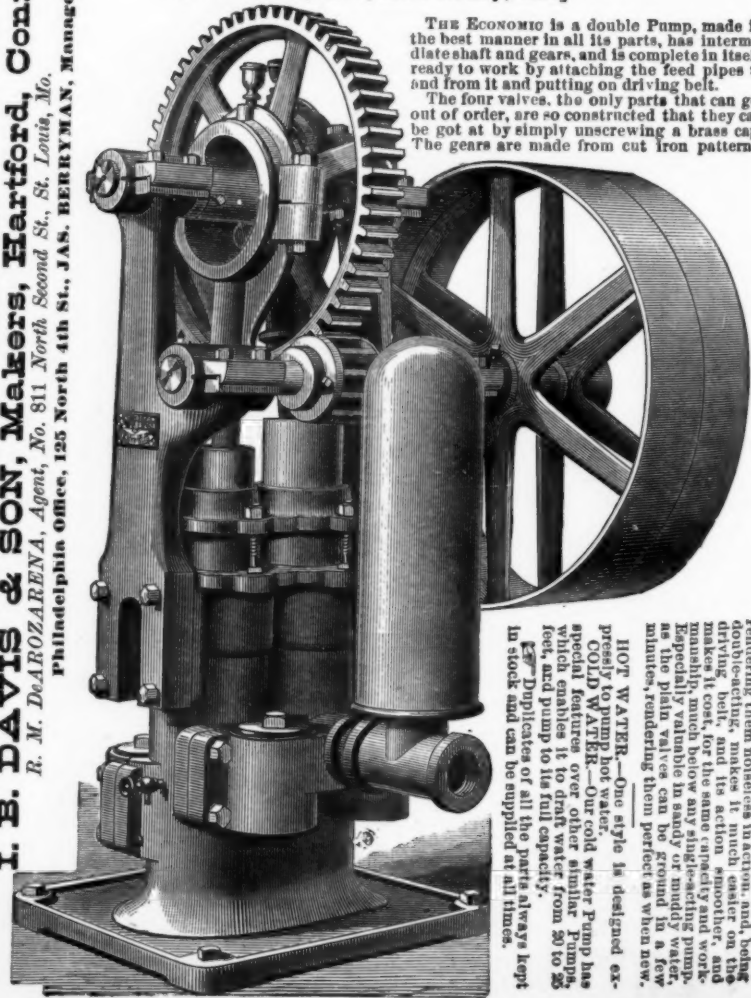
ENGINES, HORSE-POWERS, BOILERS, &c.

Information and prices
given on all classes of ma-
chinery. Correspondence so-
lited. Send for illustrated
catalogue. Premiums awarded
at World's Exposition, New
Orleans.

**RICE HULLER No. X.**

THE ECONOMIC PATENT Boiler Feed Pump

[Patented May, 1870, and February, 1883.]



THE ECONOMIC is a double Pump, made in
the best manner in all its parts, has interme-
diate shaft and gears, and is complete in itself,
ready to work by attaching the feed pipes to
and from it and putting on driving belt.

The four valves, the only parts that can get
out of order, are so constructed that they can
be got at by simply unscrewing a brass cap.
The gears are made from cut iron patterns,

rendering them noiseless in action, and, being
double acting, it makes water on the
driving belt, and its reverse motion, and
makes it cost, for the same capacity, less
manpower, much below any single-acting pump.
Especially valuable in sandy or muddy water,
as the plain valves can be ground in a few
minutes, rendering them perfect as when new.

HOT WATER.—One style is designed ex-
plicitly to pump hot water.

COLD WATER.—Our cold water Pump has
special features, it is to pump water from 20 to 25
feet, and pump to its full capacity.

Duplicates of all the parts always kept
in stock and can be supplied at all times.

I. B. DAVIS & SON, Makers, Hartford, Conn.
R. M. DeARAZARNA, Agent, No. 811 North Second St., St. Louis, Mo.
Philadelphia Office, 125 North 4th St., JAS. BERRYMAN, Manager.

NOTE.—Every one of our Cold Water Pumps is tested on a lift of 23 feet.

HOWARD & BULLOUGH, & RILEY,

BUILDERS AND IMPORTERS OF

COTTON MACHINERY.

Wool, Worsted and Flax Machinery and English Card Clothing. Hardened and Tempered Steel Wire a Specialty.
MILL ENGINEERS. No. 19 PEARL STREET, BOSTON, MASS.

GREAT SUCCESS OF OUR
PATENT ELECTRIC STOP-MOTION,

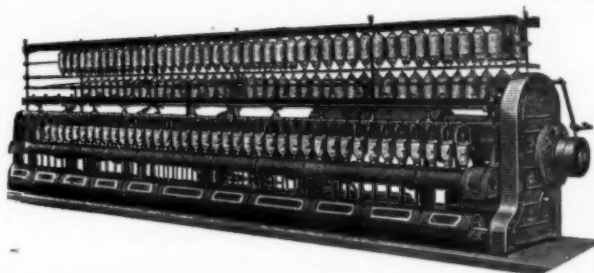
ALREADY APPLIED TO OVER
10,000 DELIVERY HEADS
OF DRAWING, AND
71,000 INTERMEDIATE
ROVING SPINDLES.

The quality of Sliver produced by our Frames
surpasses all others, and Waste, Single and Roller Laps
are prevented, and production increased.

Correspondence Solicited.

Send for Circulars.

SLUBBING AND ROVING FRAMES WITH LATEST AND BEST IMPROVEMENTS.



SPECIALTIES:
EXHAUST OPENERS, LAPPERS, (LORD'S
EVENERS,) IMPROVED ROLLER CARDS,
PRODUCE MORE AND MAKE LESS
WASTE THAN ANY OTHER.

7,000 SELF-STOPPING WARPERS.
Already working with latest improvements.

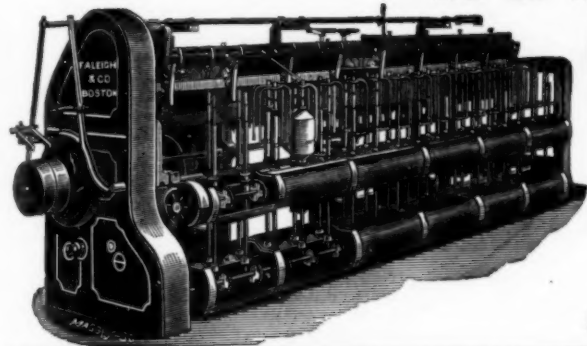
800 CYLINDER SLASHERS
Now at work in America alone

Patent and plain Spindle, Spinning and Twisting Frames,
Spoolers, Reels and Circular Warpings, Cloth Folders, Size Kettles
plain and Fancy Looms, Spindles, Flyers and Fluted Rolls.

F. A. LEIGH & CO.

Importers of Mill Machinery,

—No. 40 WATER STREET, BOSTON, MASS.—



Openers, * Lappers, * Cards, * Drawing,
Slubbing and Roving Frames,

CARD CLOTHING, Etc.

Correspondence Solicited.

Send for Circulars.



GANDY'S PATENT MACHINE BELTING

GOLD MEDAL AWARDED NEW ORLEANS, 1885, FOR BEST RUNNING BELTS.

Made PERFECTLY Straight and any Length without Joints.

For Main Driving it is the Best. Much Cheaper Than Leather.

MANUFACTURED BY

THE GANDY BELTING CO., BALTIMORE, MD.



THE "TRIUMPH" ROCK DRILL

and NORWALK AIR COMPRESSOR

Are the Latest and Most Improved Machines that were ever designed for the work required of them. They are the Most
Simple, Economical and Effective now known, and will satisfy all Purchasers.

Boilers, Steam Pumps, Hoisting Engines, Pipe and Fittings, Electric

Blasting Apparatus, Powder, Caps and Fuse, Steam and Air Hose, Wire Rope,

—And General Mining and Contractors' Supplies.—

Complete Specifications for Rock Drilling and Mining Plants Furnished on Application.

SERGEANT DRILL CO., 16 Dey Street, New York, U. S. A.

Buerk's Watchman's Time Detector.



—IMPORTANT FOR ALL LARGE CORPORATIONS AND MANUFACTURING CONCERNS.—

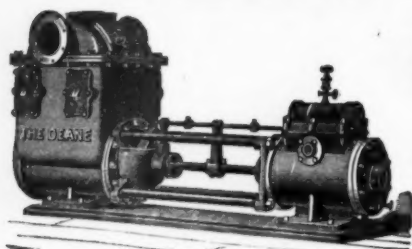
Capable of controlling with the utmost accuracy the motion of a watchman or patrolman as the same reaches different stations of his
beat. The instrument is complete in itself, portable, and as reliable as the best lever watch. It requires no fixture or wires communicating
from room to room, as is the case with ordinary watch clocks.

The Instrument will in all Cases be Warranted Perfect and Satisfactory.

P. O. Box 2470.

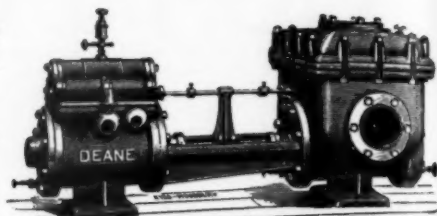
J. E. BUERK, Proprietor, No. 230 Washington St., BOSTON, MASS.

THE DEANE STEAM PUMP CO., HOLYOKE, MASS.



MANUFACTURE
Every variety of Pumping Machinery
VACUUM PUMPS FOR SUGAR WORK, ETC.
IRRIGATION PUMPS ARE SPECIALTIES.
Water Works Pumping Engines for Cities and Towns.

SEND FOR NEW ILLUSTRATED CATALOGUE No. 22.



HELL GATE

— BLOWN UP WITH —

240,000 Pounds of RACKAROCK.

Safer than any other High Explosive.

Stronger than No. 1 Dynamite, and Cheaper.

For Circulars address

RENDROCK POWDER CO., 23 Park Place, N. Y.

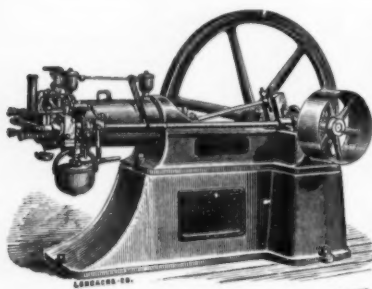
Rand Drills.

Every Hole for the great blast at FLOOD
ROCK was drilled with the

RAND DRILLS.

RAND DRILL CO.

23 PARK PLACE, N. Y.



Over 14,000 in Use.

Otto Gas Engine

20 to 70 per ct. less Gas
consumption than
ANY other ENGINE.

Working Without Boiler, Steam, Coal, Ashes or Attendance.

Started instantly by a Match, it gives full power immediately. When stopped, all expense ceases.

No explosions, no fires nor cinders, no gauges, no pumps, no engineer or other attendant while running. Recommended by insurance companies. UNPARALLELED IN EVERY RESPECT for hoisting in warehouses, printing, ventilating, running small shops, &c. Sizes: 1 to 25-horse power.

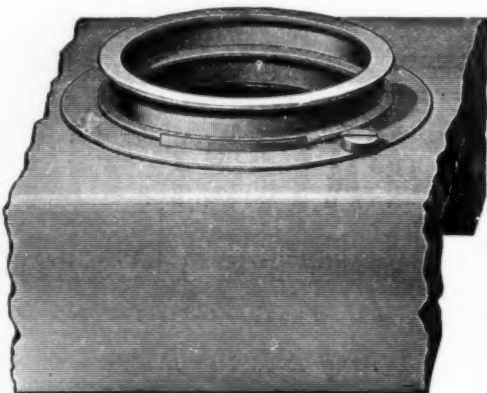
Branch Office, 214 Randolph St., Chicago.

SCHLEICHER, SCHUMM & CO., N. E. cor. 33d and Walnut Sts., Philadelphia.

DOUBLE ADJUSTABLE Spinning Rings.

GEORGE DRAPER & SONS,
HOPEDALE, MASS.

TELEGRAPH ADDRESS AND RAILROAD STATION,
MILFORD, MASS.



Number of Rings sold.	Number of Rings sold for repairs.
1869..... 6,025.....	
1870..... 20,258.....	
1871..... 38,648.....	
1872..... 94,264.....	12
1873..... 127,301.....	
1874..... 168,389.....	500
1875..... 223,984.....	963
1876..... 185,319.....	947
1877..... 270,811.....	946
1878..... 215,214.....	3,309
1879..... 336,918.....	8,007
1880..... 567,860.....	11,264
1881..... 659,730.....	8,974
1882..... 636,715.....	22,515
1883..... 416,500.....	21,689
1884..... 310,869.....	25,105
1885, 5 mos. 212,036.....	22,373
Total num-ber sold..... 4,489,794	126,604
Total number in use 4,363,190.	

The great durability of our Rings is shown by the fact that we have more rings in use over twelve years old than all we have sold for repairs.

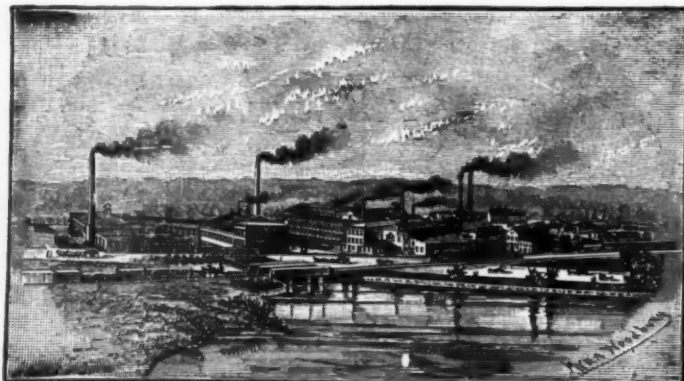
This statement shows unmistakably that a mill once supplied with our rings need think but little of the cost of repairs. As the number sold for repairs is an average of about twenty per cent. of the number sold the tenth year before, the average life of our rings will be at least twelve years.

Do not make the mistake of ordering new frames without specifying Double and Adjustable Rings. While they cost more to begin with, they are much the cheapest in the end, on account of their uniform excellent quality and unparalleled durability.

As an encouragement to use none but the best of Rings, we reduced the price on and after the first day of January, 1885, of those 1 1/4 inches or less in diameter, without holders and screws, to be used only to take the place of our rings worn out, to 12 cents each.

Washburn & Moen Manufacturing Co., Worcester, Mass.

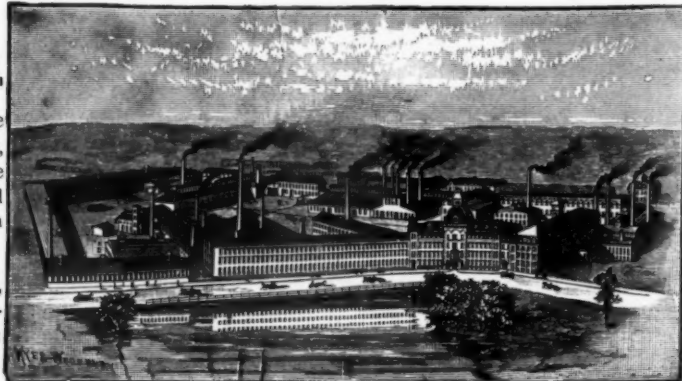
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S. H. Edmunds. J. W. Egsby. Wm. H. Edmunds.

R. H. EDMONDS, EDITOR.

—OFFICE—

71 and 73 Exchange Place, Cor. Commerce St.,
—BALTIMORE—

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BALTIMORE, DECEMBER 19, 1885.

Sound Views on the Railroad Commission.

At a caucus meeting of members of the South Carolina legislature the question of supporting the railroad commission was brought up, when some vigorous common sense was displayed by several members.

Mr. Mockbee, of Chester, desired to be placed on record as being in favor of wiping out the whole concern.

Mr. Hemphill said the people had to pay for the commission. It cost them 234 bales of cotton a year to keep it up.

Mr. Blake, of Abbeville, was in favor of abolishing the whole concern. No capitalist would bring money in the State to build railroads as long as the commission existed.

Senator Moody, of Marion, desired to express the opinion that the commission was an absolute nuisance.

These four speakers certainly hit the nail squarely on the head. The commission is not only an "absolute nuisance," it is a costly nuisance, it is a nuisance that not only has to be supported by the taxpayers, but it is also a nuisance that has kept millions of dollars from investment in that State, and in this we know whereof we speak.

CORRESPONDENCE relating to the manufacturing, mining, lumbering and all other material interests of the Southern States is solicited. Reaching so many capitalists in all parts of the United States seeking profitable investment in the South, the MANUFACTURERS' RECORD offers an excellent chance for the people in that section to place the advantages of each locality before those likely to be interested. We will take great pleasure at all times in telling what has already been accomplished in the South, and showing up the opportunities of doing still more.

An Effort to Revive Baltimore's Sugar Industry.

Some years ago Baltimore was the center of a great sugar refining industry, the annual product of which was counted by millions of dollars. Its ramifications extended to almost, if not quite, every business interest in the city. Hundreds of vessels loaded with sugar and molasses came here every year from the West Indies, and returned with full cargoes of miscellaneous merchandise, such as provisions, breadstuffs, dry goods, boots and shoes, &c. The heavy sugar trade helped to develop and maintain an extensive wholesale grocery and coffee business, it furnished heavy shipments to the transportation lines, business to the banks, and made all wharf and adjacent property very valuable. This enormous business was lost about ten years ago, and since then Baltimore has seriously suffered in many lines of industry. The banks have lost the handling of millions of dollars, the railroads have lost the carrying of an immense amount of freight, wharf property has greatly depreciated in value, and many interests that were dependent upon the sugar trade have either entirely dried up or been reduced to very small proportions.

Several efforts have been made to revive this industry, but the business men of Baltimore have failed to respond with sufficiently liberal subscriptions. One more effort is now being made, and if this should fail it may truly be said that Baltimore does not deserve any greater prosperity than she now enjoys. Messrs. Robert Garrett & Sons, who have always been willing to make a heavy subscription towards organizing a refinery company, have now made a very liberal proposition to the business men of Baltimore. They agree to build and equip with the best machinery, a refinery of 1,000 barrels daily capacity, and rent it at a price equal to 4 1/2 to 5 per cent. on the cost, provided a company is organized with a cash capital of \$300,000 to operate it. While it is not stated what this refinery would cost the Messrs. Garrets to build, it has been generally estimated when efforts have been made to organize a company to build such a refinery, that its cost would be in the neighborhood of \$500,000. If the effort to raise this \$300,000 working capital is successful, as it ought to be, nearly \$1,000,000 will at once be added to the manufacturing capital of the city. Surely the business men of Baltimore can see the importance of securing this important enterprise. In fact, Baltimore can not afford to lose such an opportunity. She has already lost too many of her once flourishing industries, and if the current that has started the wrong way is to be turned, and all her business interests once more to be made prosperous, the work must begin at once.

Does Protection Hurt Farmers?

The late Dallas Herald shortly before its death discussed, or at least attempted to discuss, the injury of a protective tariff to the farmers of the country. Among other things it said:

* * * "Forcing \$400,000,000 worth of grain and provisions to go abroad annually at a cost of over \$100,000,000. With all the governmental hot house agencies to build up manufacturers to absorb home production, a tremendous surplus is forced into a foreign market under disastrous circumstances every year, while the farmer is compelled to buy at the manufacturers' own prices and is denied the privilege of choosing his own point for purchases. In a word, he is constrained to buy from a market where there is, comparatively speaking, no competition, but must sell in competition with the world. And this is the grand result after half a century's efforts to build up through a protective tariff a so-called 'home market.'"

The Herald seems to lose sight of the fact that the value of our agricultural productions is over \$3,000,000,000 a year, besides the enormous annual value of our bacon and beef. Certainly we have quite a big home market if it can consume all this, and ship so very small a proportion to other countries. If it were not for that protective tariff which has built up so many manufactures, and thus afforded a good home market for our agricultural products, what would be the condition of our farmers? They would not only have fewer consumers, but hundreds of thousands of workmen now engaged in mechanical employments, would be forced into farming. The sword would then cut both ways. Consumers of farm products would be fewer, and producers of farm products would be more numerous.

It is doubtless somewhat amusing to the average manufacturer, to learn that in this country "there is, comparatively speaking, no competition," and he only wishes that it were true. He knows only too well that in everything from hair pins to a steam engine competition is excessively sharp, and that prices for manufactured goods, whether they be dry goods with which to clothe the farmer or agricultural implements with which to work his land, are lower than ever before. As to the farmers "selling in competition with the world," and a "tremendous surplus forced into a foreign market under disastrous circumstances every year," it is evident that the Herald writer thought more of the fine sounding of his words, and paid more attention to well-rounded periods than to the facts. The American farmer has the American market, the best in the world, with, "comparatively speaking, no competition," and instead of a "tremendous surplus" going abroad, the surplus is really not very great when we take into consideration the enormous annual production. Moreover it is not forced abroad under disastrous circumstances. It goes there because there is a demand for it, and how the destruction

of our protective tariff system would make that demand more profitable to our farmers we fail to see. The writer who attempts to prove that it would accomplish this must ignore some very plain facts, facts that are directly opposed to his sophistries.

The Pennsylvania Railroad vs. the Country.

If there were no other object to be obtained by the extension of the Baltimore & Ohio Railroad to New York than to convince the Pennsylvania Railroad Co. that they do not own the whole country between Baltimore and New York, the work would still be one of national importance. When a corporation gigantic as the Pennsylvania, and as unscrupulous in its fight against competition, attempts to dictate what railroads shall or shall not have the privilege of entering Philadelphia or New York, it is full time that its managers be forced to see that there are other corporations and other people that have some rights, and which they propose to maintain. That the Pennsylvania Company will make a bitter fight against the Baltimore & Ohio, both in Congress and in the New Jersey legislature, is freely admitted by its officers. The truth is, some of these officers talk as though New Jersey were merely a part of the Pennsylvania Railroad Company. However liberal this company may be with its stockholders' money in attempt to defeat legislation favoring the extension of the Baltimore & Ohio to New York, it is quite sure that it will be money spent in vain.

A GLASS manufacturer is advocating the establishment of glass works in Birmingham, Ala. He claims that that city possesses excellent advantages for such an industry, and that the South would afford a ready market for the products of the factory. There is no doubt that there ought to be, extensive works for making glass somewhere in Georgia or Alabama. The Atlanta people have lately been trying to organize a company to build glass works to supply the immense local demand for bottles. Atlanta is one of the greatest patent medicine manufacturing centers in the country, and an enormous supply of bottles is needed for this business alone. At present these bottles, as well as all other glassware needed in the South, must be brought from the North or West. To be prosperous the South must be self-supporting, it must not only make its own pig iron, but it must turn it into agricultural implements, hardware, etc.; not content with raising cotton it must manufacture it, and instead of buying its provisions in the West it must produce them. When all this is done the South will be on the road to sure and permanent prosperity. It has already made a good start that way.

NOTES.

Some opposition to the State Agricultural Department was lately developed among the South Carolina legislators, doubtless due in a large measure, as in many other legislative matters, to ignorance, when one of the members of the legislature presented a careful report of good work done the Agricultural Department, which called forth the remark from another member that "he was as ignorant as Baalam's ass about the workings of the bureau until that report had been made. [laughter,] and he believed that everybody in the hall was equally as ignorant as himself. [Sudden cessation of laughter.] He would support the agricultural department." We wonder how many other legislators, State and national, are just as ignorant about matters that they are called upon to vote on.

An enterprising Ocala (Fla.) gentleman is trying to organize a stock company to purchase 400 acres of land, to be devoted to lemon culture. This is an industry that merits more attention in Florida than it has yet received. It promises profits fully as satisfactory as orange groves, and Florida needs to let it be known that oranges are not the only fruit that the State can produce. A little diversity of productions is always desirable, and it is especially important for the welfare of the State that all attention should be centered in Florida on oranges. In fact the whole South and every part of it needs to diversify its agricultural productions. All tobacco or all-orange crops will in the end be like the all-cotton system. The farmer must raise his own supplies to be permanently prosperous.

Commenting on this lack of diversified manufacturing and agricultural industries which sends to Maine for tomatoes, to Cincinnati for bacon and lard, to New York for butter, to New Jersey for apples, pears and grapes, and to the North generally for hay with which to feed stock, and to the North and West for machinery, furniture, farming utensils, boots, shoes, etc., the Wilmington Star says: "The funniest commentary ever made upon Southern independence was when the North Carolina State fair fed the stock on exhibition on Northern hay. It was a huge joke. An agricultural fair sending to other States to feed for a few days stock that was to be exhibited for the encouragement of farming. The Southern people have a great deal to learn and to do before they become self-sustaining. With their advantages they ought to raise enough of every thing and to spare."

Some years ago about \$100,000 was spent in trying to develop a sulphur mine in Louisiana, and then the company engaged in the

work, being unable to continue, transferred their property to a new organization—The Louisiana Sulphur Mining Co., of New Orleans. The old company found sulphur of a high percentage, but did not succeed in mining it to any extent. It is now proposed to spend another \$100,000 in pushing the development of this property, the present owners believing that they will be able to supply at least a part of the sulphur annually consumed in this country.

Whatever may be the objections to tobacco and its use and abuse, it must certainly be credited with having added many a dollar to the wealth of the South. The increased prosperity of many parts of North Carolina and Virginia since the attention of the farmers was turned to tobacco, and the rapid growth of such towns as Winston, Durham, Oxford, Reidsville and other places, has been repeatedly told in the MANUFACTURERS' RECORD. The Wilmington Star, answering the question, Does tobacco pay? says:

"It has shown from actual sales that North Carolina farmers have made from \$200 to \$500 to the acre, and from \$400 to \$1,000 to the hand, or even more. The Henderson Gold Leaf gives a recent example. It says: 'In 1882 a man near Henderson planted one acre in tobacco. There were 5,000 hills. He made 1,380 pounds, which he sold for \$385.25 net. The next year, same land, he made 1,550 pounds, and sold it for 416.85 net. In 1884 he made on the same acre 1,765 pounds, which he sold for \$500, being ten cents per hill.' In Granville and other counties such examples as this abound. One man near Oxford planted ten acres for three consecutive years. He worked two men and a boy. The results were \$12,000 for the three years work—an average of \$4,000 a year and \$400 to the acre. More surprising results than these can be given. But this shows that tobacco pays."

Evidently then tobacco does pay the farmers. That it develops prosperous towns we have repeatedly shown. Another town that has not often been heard of in this connection is Martinsville, Va., and yet Martinsville, largely through the influence of tobacco, has made remarkable progress. A writer in the Lynchburg News says of Martinsville:

"There is nothing in Southern progress more marvellous than the growth of this place during the past five years. In 1880 Martinsville was a sleepy little village of 285 inhabitants. Now our population is 2,500. In 1880 there was not a tobacco factory, warehouse or machine shop in Martinsville. Now there are nine factories, four large warehouses for the sale of tobacco, three machine shops and a foundry. We have some of the handsomest storehouses and business blocks in the State, all new and made of brick. Two new brick churches have been built and two more will soon be constructed. In 1880 the assessed value of real and personal property was \$34,000; now the real and personal property here is worth \$1,000,000."

The rapid extension of the tobacco field brings up the serious question, is there no danger of the business being overdone? If the South is to find a profitable market for its

steadily increasing production of tobacco, will she not soon have to send out tobacco missionaries to urge upon the people the value of tobacco? Instead of warning the young against the weed in all its many shapes, will it not be necessary to inculcate in the rising generation the virtues of the pipe, the cigarette, the cigar and the quid?

The desire to "go South" is evidently spreading in the North and West. Merchants and manufacturers alike are gradually coming South to locate, and of late farmers are beginning to do the same thing quite freely. Of course Florida, Texas and Arkansas, have been enjoying liberal immigration for some years. It is of the central South, the Carolinas, Georgia and Tennessee, that we are now more particularly speaking. Through the efforts of State Commissioners and the railroads, quite a number of excursions of farmers from the West to the South have been worked up, and it looks as though great good will come therefrom. Quite a large party of Ohio farmers have been traveling through Georgia to spy out the land.

In conversation with one of the party a reporter of the Atlanta Constitution was told:

"We are here for the purpose of looking at the farming lands of Georgia. I believe that with hardly an exception the excursion is made up of farmers of Ohio, and good ones at that, and when I say good ones I mean men who have made a good living and some money to lay up by farming. So far they are most favorably impressed with what they have seen and heard, and it would not surprise me if nearly every one of our party did not drift down here to make Georgia their home in the next six months, and their coming will bring hundreds of others. Your climate would give a farmer nearly the entire year in his fields, whereas in Ohio we consider ourselves in luck if we get more than five months. I expect to take in a good portion of the State before I return home and believe the other members of the party will do the same."

The climate is one of the things that the Northern or Western man never seems to tire of discussing. Coming from a country where the winters are long and intensely cold, he finds in the South that there is but little severe weather until the latter part of December, and that instead of being able to carry on farming operations only about one-half of the year, as in the West, he can work out doors nearly the whole year. This he realizes is a big advantage, and when to this is added the cheapness of land, the South becomes in the eyes of the Western man who sees it for himself, a most inviting place. And it is no wonder that the climate is a great attraction.

The writer is now in the mountains of Carolina, and he cannot but enjoy the pleasant climate there, as he reads of the snow storms in the North, the blizzards in the Northwest, and the severe cold through the North and

West generally. Mountainous sections are not usually warm in winter, and yet the thermometer yesterday was about sixty nearly all day, and with a brilliant sunshine after a short rain in the morning, it seemed to be the balmiest of balmy spring days. No wonder that every Northern man one meets is charmed with the climate of the South. It is only these people who fully appreciate this great blessing of the South; the natives who have always lived here and been accustomed to the climate, can hardly be expected to appreciate it like those who have once lived where snow and ice abound for five or six months in the year.

Mississippi, as well as the Carolinas and Georgia, is attracting immigrants. A dispatch from Jackson, Miss., says:

"The United States Land Office has been crowded with buyers for the past few days. Most of them are from the North and West, who are attracted by the magnificent pine lands of South Mississippi. The excellent timber display of our State at the exposition has no doubt done much towards turning the eyes of the land-seekers this way. The office to-day sold upwards of 30,000 acres, situated mostly in Marion county. This makes about 60,000 acres of pine lands sold during the last ten days. The price paid for these lands is \$1.25 per acre."

Henderson is well-known as one of North Carolina's flourishing towns where tobacco is a big business, but we never knew until last week that Henderson is the largest incorporated city in the world. The Raleigh Chronicle makes this information public, and it tells how it happened, which was in this way:

In drawing the bill to incorporate the town it was intended to make it 1,000 yards in every direction from the depot. By a clerical error "miles" was substituted for "yards" and the bill passed in that shape. This incorporation act makes New York City, Philadelphia, Baltimore and the various other big cities suburbs of Henderson.

Utilization of Exhaust Steam.

The advance in mechanical science is so rapid that constant study is necessary to keep pace with inventions and discoveries, and almost daily we find some busy mind has been thinking out the problems of economical production of force. The latest novelty in this line is the American Exhaust Injector, a little instrument which takes the exhaust steam from an engine, utilizes the waste product by heating the water and forcing it into the boiler. Extraordinary as it may seem, this injector will take exhaust steam, and, heating the water to 190 degrees, force it into the boiler, against a registered pressure of 90 to 100 pounds. We saw one at work in the extensive establishment of the John T. Noye Manufacturing Company, which was forcing against 90 pounds on the boiler steam gauge. It will work at and below atmospheric pressure and feed against 90 pounds boiler pressure. This condition will render it valuable to steam users and will prove a solution to a large portion of the problem of economic force production, for at a cost of nothing but exhaust steam, generally a total waste, we find an actual production of heated water combined with the power to inject it into the boiler.—Exchange.

The American Injector Co., Detroit, Mich., are sole manufacturers of this valuable new invention, and will take pleasure in answering all inquiries.

The Tariff in the President's Message—The Limitless Resources of the South—Condition of the Iron Market and General Business.

[Special correspondence BALTIMORE MANUFACTURERS' RECORD.]

BIRMINGHAM, ALA., Dec. 14, 1885.

While the President's message, taken in its entirety, has met with general approval in this part of the country, and, indeed, everywhere in the South, as far as I have been able to learn, this can hardly be said without at least some qualification in respect to the section in which His Excellency treats of the tariff. The message advances the proposition that the government "is never better administered, and its true spirit is never better observed, than when the people's taxation for its support is scrupulously limited to the actual necessity of expenditures, and distributed according to a just and equitable plan." From this axiomatic premise the President crosses a rather short bridge to the conclusion that the (only) "proposition with which we have to deal is the reduction of the revenue received by the government, and indirectly paid by the people, from customs duties." At the risk of seeming guilty of "treason, privy conspiracy and rebellion," there are not wanting people who will question the force of the presidential logic in this case. Is there then no other source than the customs duties from which the government is deriving more revenue than is needed for safe and economical administration? If there be, it almost looks, on a careful reading of the context of the message, as if the illustrious writer of that document wanted to dodge the fact. He may write what he pleases and omit what he likes in his state papers, being, like the rest of us, "free, white and twenty-one," but that will not deter the people from reading between his lines, nor from supplying a palpable oversight in his discussion of the tariff question.

It is impossible to read the message without becoming convinced that the President elects to lay the burden of our present excessive national income upon the tariff, designed and fairly effective to protect American industries against injurious foreign competition, while at the same time providing means for the administration of government, and for other useful purposes, such as river and harbor improvements, the extension of commerce, the establishment of coast defenses, the construction of a navy, and so on. Undoubtedly, this protective tariff, which is still too little, and not too greatly protective to many industries well worthy of encouragement and the fostering care of the nation, is chargeable for the overflowing state of our public coffers; but Mr. Cleveland, his cabinet ministers, the Congress and everybody else know perfectly well that there is another drain upon the pockets of the masses in the shape of internal revenue taxation, which is not only nearly as important a source of income to the government, but has now no excuse for existence such as the tax on imports has. The customs tariff protects American capital, enterprise and labor; the internal revenue system taxes all without benefiting any. Yet we look in vain through the message for any suggestion in the direction of the abolition or abatement of this war-born, obnoxious and onerous system, which has outlived the only purpose that ever furnished the least excuse for its existence, which was to supply the government with money needed for extraordinary expenses.

The only reference to the internal revenue system is to be found in the President's *resumé* of the report of the Secretary of the Treasury. In this it is stated that the net result of that once necessary evil for the year was \$112,498,725. If the administration has

more money coming in than it requires for plain, practical democratic government, why not lop off some of this direct tax upon the poor people of the country? I know of whole counties in Alabama where tobacco culture is restrained to-day by the fear the people entertain of the revenue officer, with his attendant circumstances of spies, informers, arbitrary control of private enterprise, and the like. Where a few dozen large distillers in a State are benefited by the system, with its repugnant features of secret police espionage and corruption, there are thousands of poor mountain farmers who are estopped by it from turning their meagre crops of grain and fruit into the only merchantable commodities that will bear transportation to markets. The message states the total ordinary receipts of the government at \$322,690,706, and the total ordinary expenditures at \$217,556,353, leaving a balance of receipts over disbursements amounting to \$105,134,353. So it will be seen that the internal revenue system represents for the year within about \$7,000,000 of the surplus. Is it not reasonable to question the President's apparent conclusion that it is to the customs tariff alone that we ought to look for a reduction of income? Such reduction applied to the duties on imports must inevitably work injury, if not disaster, to native industry; but every possible reduction of the direct internal revenue tax would, to that extent, remove a tyrannical embargo from home enterprise and industry. If farther argument in this connection were needed, the figures of the treasury report show that the tariff has displayed a greater tendency toward adjustment to the views of the administration than has the internal revenue system. During the fiscal year the receipts from customs fell off \$13,929,854, while the receipts from oppressive internal revenue taxation only diminished by \$9,687,346. It seems to me that Mr. Cleveland would have occupied much stronger ground before the people if, instead of what he did write, he had written: "The proposition with which we have to deal is the reduction of the revenue received by the government, and paid by the people, from internal revenue taxes, the same being a direct, arbitrary, unjust and unnecessary burden upon native agriculture, commerce and industry." That "the question of free trade is not involved," in the opinion of the Chief Magistrate, in the discussions of the tariff question to which the message may be the prelude, is a little something to be thankful for, albeit not quite as much as one might wish.

Some time ago the Times-Democrat, of New Orleans, contained the assertion that if any material resource necessary to the perfection of our new development should appear at any time to be lacking, it would only be necessary for the district most in need of it to hunt around the neighborhood a little, and it would materialize immediately. Judged narrowly, this proposition might be open to the charge of exaggeration, but, all the same, I have seen it so repeatedly justified by facts and discoveries, that I begin to think it not so wide of the mark after all. Louisiana was not long ago supposed to be entirely devoid of mineral resources—so completely so that the State was unable to find a piece of native stone big enough to represent her in the Washington monument. Now she claims heavy deposits of excellent iron ore spread over a number of parishes, while her wealth in salt, sulphur, kaolin and many other useful things is notorious. The district of which Birmingham is the center and metropolis has not been thought deficient in mineral resources, but there have been many things which, at different times, have been long desired before they were found. For example, there have been several opportunities to establish glass factories here, and enquiries from capitalists and experts have been more than a few in that direction, but the trouble has been that no

suitable sand for glass-making purposes could be found in the vicinity. Recently, however, a large deposit of very superior sand, a pure and undefiled silica, as fine as the finest grained sugar, has been opened, and practical people from New Jersey are negotiating with a view to the establishment of glass works. Other evidences might be cited of the prevision of Providence in supplying the New South with everything it could possibly want to justify and support a teeming population, the variety of whose avocations should be limited only by the complete schedule of human industrial and other pursuits.

The situation of the iron industry in this city and district was reported in my letter last week as being satisfactory and encouraging in the extreme. This week it is even better. There is the greatest activity in all departments of the interest. Another advance of 50 cents per ton all around is to be noted in pig iron, and orders are constant and pressing far beyond the current capacity of our plants to fill them at the advance. For five or six days past the local ironmasters have been favored with continual telegraphic enquiries and orders from New York and Pennsylvania, and there again appears to be good reason to expect a farther rise in prices. This prospect inclines furnace managers to greater conservatism than they have dared to assume since Birmingham first went into business. I think there is a general conviction that pig metal will command a considerably better figure within 60 days, and that a disposition to accumulate stock rather than to sell at the present market is growing. The following quotations, cash at furnace, will represent the status of the commodity:

No. 1 Foundry.....	\$15 50@—
No. 2 ".....	14 50@—
No. 3 ".....	13 75@14 00
No. 1 Mill.....	13 00@—
Grey Forge.....	12 75@—

The repairs at the Alice furnace are being pushed rapidly, and the work on the new Williamson furnace is moving along as fast as the proprietors, spurred by the anticipation of a rising market to operate on when in blast, are able to promote it. The Birmingham Rolling Mill is doing its best to catch up with orders, which are still behind-hand and pressing. The Linn Iron Works have all they can do to meet the demands upon their capacity, and the same is true of every concern at all related to iron.

Public improvements are progressing rapidly and largely. Grading, paving, water-piping and sewerage are going on ceaselessly all over the town, and the stranger within our gates is very apt to derive the impression that the government and people of the burgh are under contract to finish the place within 24 hours. A number of new and extensive business blocks have begun to climb skywards since last I mentioned that subject, while private houses too numerous to more than mention generally, and of vastly improved character, are to be seen in various stages of construction everywhere. Business in all mercantile lines is good. There has been but one failure, and that an unimportant one, for some time, and the probability appears to be very slim that there will be any others in the near future. New enterprises of different sorts are talked of, as a rule now with reference to spring operations. It is likely that a considerable pottery industry may be established here by May or June. The question of freights on raw material is still an open one to some extent. When that is settled satisfactorily and definitely for a long enough time to give the potters a basis for calculation ahead, it is understood that at least two Northern concerns stand ready to establish plants at Birmingham, using the exceptionally pure kaolin produced at the Allen mine, which is less than a hundred miles north, and directly on the Alabama

Great Southern Railway. Farther sales of mineral property in the neighborhood, this time to a New York party already interested in the region, are reported. About 9,000 acres went in one lot last week, and early coal developments are to be made on the territory. The land departments of the railways are being kept busy attending to the countless enquiries for all sorts of land—mineral, timber and agricultural—and written from every corner of the Union. It seems plain that there is a new and extensive interest being taken at the East in the subject of our coal and iron lands, and the only fear is that the rapid purchase of choice mining properties and furnace sites for development now going on may, by and by, inflate prices, which as yet have not risen much if any—the more fortunate for investors. While a "boom" is something which Birmingham neither needs, desires nor anticipates, there is promise of a good prosperous year to come, with activity, enterprise and paying markets for our productions.

G. B. W.

Soundly Stated.

Dr. A. G. Haygood, of Georgia, one of the purest, ablest and best known of the ministers of the Southern Methodist Church, a man who threw away a bishopric for his humbler sphere as a plain working preacher, thus expresses in a nutshell the objection to railway commissions in whatever forms they are advocated by those who mix railroads and politics:

"I would not vote for George Washington, John Quincy Adams and Thomas Jefferson to have exclusive control of the railroad property of Georgia. The modification of the commission would be best for the railroads and the people. The best thing for the one is the best for the other. They are inseparably connected, and there is no need of any fight between the two."

The reader must be dull who cannot supply the reason why he would not trust John Savage and—we mean Washington, Adams and Jefferson, to have the exclusive control of the railroads of Georgia. The English speaking people, during the long struggle between the people and power, have had many temptations to curb power and reform evils by the use of the strong arm permanently established. They have never yielded to the temptation. They have never erected any machinery other than the law for their protection.

The supreme power of the law, the right of free recourse to the law by the citizen, and the power of public opinion are the sole barriers a wise people have ever erected in England or America. It will be a sad day when we depart from that course in federal or state sphere and give to commissions legislative, judicial and executive powers.

That the short arm of the citizen may sometimes well be strengthened and pieced out by the long arm of the law in the fight with great, powerful and rich corporations, is true. For this we find full warrant in the common law in many cases where the officer of the crown or of the law is empowered to aid the aggrieved citizen or even to bring and maintain suit on his behalf.—Memphis Avalanche.

OUR Mountain Home, of Talladega, Ala., in its last issue, says: "From information now in our possession we are assured that two blast furnaces will be built in Talladega; work to commence by the first of next April. This is certainly glorious news for our people, and with the erection of the water works, the working of the large mines of fire-clay and the starting of the Eagle Works in a few days puts Talladega in the front rank of all Southern manufacturing cities. Much has been said in one way and another about the erection of furnaces in Talladega during the last few years, and now we are assured that furnaces will be built here beyond a doubt. We have not yet been informed as to the location of the furnaces, but are assured that they will be placed near the city."

CONSTRUCTION DEPARTMENT.

WE PUBLISH, every week, a list of every new factory, of whatever kind, projected anywhere in the South; every railroad undertaken, and every mining company organized. This information is always fresh, and, by enabling manufacturers to correspond with the projectors of such enterprises before their supplies of machinery have been purchased, is of great value. Manufacturers will find it to their interest to read this department carefully each week.

ALABAMA.

W. P. Brewer, Birmingham, Ala., is building an addition to his planing mill.

Mess. Fossick have purchased the bucket factory and saw and grist mills, of J. E. Isbell & Co., at Isbell, Ala. They are building a railroad 1½ miles long, to their limestone quarry, which they will develop.

The Woodward Iron Co., Wheeling, Ala., have commenced work on their new furnace, previously reported.

W. H. Cherry & Co. will put 3,000 spindles, and other new machinery in their cotton mill, at Mountain Mills, Ala., at cost of \$12,000. This mill was enlarged during 1884, at cost of \$25,000.

A. S. Austin, Woodlawn, Ala., has sold a site to a party who will erect a machine shop for woodenware.

J. W. Thorn, of Iuka, Miss., is negotiating for the Habeller cotton factory building, at Sheffield, Ala., and will, if successful, convert it into a gin factory.

FLORIDA.

A jail, to cost \$12,640, will be erected at Newtown, Putnam county, Fla.

It is reported that a grist mill will be erected at Altoona, Fla., with wood working machinery attached.

William Ross has purchased a saw mill at Tavares, Fla., for \$5,000, and will add to it machinery for manufacturing lumber.

Peters & Davis, Jacksonville, Fla., will rebuild their soap and fertilizer works, reported in this issue as burned; loss \$2,000.

Orlando, Fla., will decide by popular vote, on December 26, whether or not to issue bonds for building water-works.

A charter for a street railroad in St. Augustine, Fla., has been applied for.

Yongue Bros., Ocala, Fla., have purchased a new 40 horse-power engine and boiler for their planing mill.

J. H. Murphy, A. B. Longaker and J. H. Abbott have incorporated in Florida the Lake Concord & St. John's River Canal Co., to build a canal from Lake Concord to the St. John's river.

Samuel R. Bullock & Co. have received the contract for erecting the water works at Pensacola, Fla., previously reported, and have commenced work.

GEORGIA.

N. & A. F. Tift & Co., Albany, Ga., will rebuild their mills and machine shops, reported last week as burned; loss \$12,000.

E. F. May and E. H. Roberts have organized, at Atlanta, Ga., the May Utility Works, to manufacture furniture.

The Conyers Oil and Fertilizer Co., previously reported, has been organized at Conyers, Ga., with W. L. Peek as president. The company will charter with a capital stock of \$10,000. A committee has been appointed to secure a site and purchase machinery.

Cartersville, Ga., is making efforts to secure water-works.

KENTUCKY.

Samuel S. Brown, C. Rosche and Jordan Giles, have incorporated at Louisville, Ky., the Western Contract Co., capital stock, \$25,000, to build railroads, bridges, houses, &c.

The Anderson & Nelson Distillery Co., previously reported as incorporated at Louisville, Ky., have amended their charter, increasing their capital stock to \$600,000.

Mr. Fisher, of Sandusky, Ohio, reported last week as having purchased 1,200 acres of timber land, at Grayson, Ky., is erecting two saw mills instead of one reported, and will erect a stave factory in the near future.

The American Distillery Co., capital stock \$50,000, has been incorporated at Louisville, Ky., by H. A. Thierman, William Ruedeman and E. M. Babbitt, to do a distilling business.

Overby Wells & Co., previously reported as contemplating moving their plug and tobacco factory from Paris to Lexington, Ky., have moved their machinery and organized at Lexington a \$25,000 stock company to operate their factory.

Tom. Riley, of Cleveland, Ohio, is in Henderson, Ky., negotiating for the establishment of a wire manufactory at that place.

The Kentucky Smelting & Mining Co., capital stock \$250,000, has been incorporated at Louisville, Ky., with T. A. Lyon as president, S. Baer, vice-president, M. B. Mayer, secretary, and E. C. Bohm, treasurer; to do a general smelting and mining business.

LOUISIANA.

Octave R. Arbour, Baton Rouge, La., will build a logging railroad four miles long.

W. J. Pollard, proprietor of the Atwood Cotton Gin Manufactory, at Kosciusko, Miss., is negotiating for a location in New Orleans, La., where he will move his manufactory.

The contract for erecting water-works at Shreveport, La., has been awarded to P. B. Perkins, of Springfield, Mo.

James G. Clark, James A. Renshaw and G. W. Westfeldt, New Orleans, La., will receive bids for erecting a large church building in that city.

MARYLAND.

Jones, Stevens & Co., Baltimore, have fitted up a building on Warren avenue with machinery for a paper mill. Twenty hands are employed.

The American Heat and Light Co., who recently bought the works of the two gas companies, at Frederick, Md., are making improvements at the Citizen's works, to manufacture gas by a new process, and next spring will build a new holder at the Isabella works. The improvements will cost about \$3,800.

The Baltimore & Ohio Railroad Co. will erect an electric light plant at Cumberland, Md., to light their yard and depot.

Charles Heiser, Baltimore, will erect a six-story building on Paca Street, and J. S. Young & Co., manufacturers of flavine, a one story building, 65 feet front, on Boston street.

A. S. Abell will erect a 5-story warehouse corner Howard and Garrett streets, Baltimore.

MISSISSIPPI.

The Progress Manufacturing Co. has been organized at Meridian, Miss., to succeed the Progress Machine Works, of G. W. Soule. The capital will be either \$100,000 or \$150,000. A new foundry, and machine and wood shops will be built, to employ from 100 to 150 hands. The location has not been decided upon, but will probably be at Meridian.

H. D. C. Richards, of New York, has made a proposition to Vicksburg, Miss., to build water-works.

J. G. Tichenor, Vicksburg, Miss., has rebuilt his carriage and wagon factory, recently reported as burned.

The Brush Electric Light Co., of St. Louis, have received the contract to light Vicksburg, Miss., and will erect a plant in that city.

W. J. Hubbard has leased of J. Solomon the East Mississippi Cotton Mills at Meridian, Miss., and will enlarge them.

NORTH CAROLINA.

A company has been organized at Henderson, N. C., to build a machine shop and grist mill. W. R. Kivitt is in the North, purchasing machinery.

Avery Wilson has leased the W. S. Suderth mill, near Morganton, N. C., and placed new improved machinery in it.

The Carolina Oil & Creosote Co., Wilmington, N. C., are doubling the capacity of their works and have commenced the manufacture of paint.

O. J. Lehman & Co., Bethania, N. C., are remodeling their tobacco factory, putting in steam power and adding new machinery to double the capacity.

T. A. Perry, Plymouth, N. C., will move his works to the river next spring, and build brick foundry and shops, and add a planing mill. The site has been secured and the works will be known as the Perry Machine Works.

Hilton & Morse have sold their large saw mill near Hamlet, N. C., to W. F. Beaman.

The item in last week's issue, stating that the Wilmington Gas Light Co., Wilmington, N. C., are making alterations in their works to manufacture coal gas, is incorrect, as their works were built to make such gas.

SOUTH CAROLINA.

James B. Baughman, Beulah, S. C., contemplates erecting a steam corn-mill and gin.

Bills have been introduced in the South Carolina legislature to incorporate the Horry Tramway Co., the Brachville & Walterboro Railroad or Tramway Co., the Greenville Wine Co., and to charter a railroad to run from Blackville to Alston.

TENNESSEE.

Pulaski, Tenn., is investigating the cost of a system of water-works.

O. H. P. Piper, W. P. Dunavant, R. H. Elliott, Josiah Patterson, F. S. Hare and J. J. Williams will incorporate, at Memphis, Tenn., the Mining Shaft Construction Co., to mine for sulphur in Calcasien Parish, La.

Mr. Myers of Pennsylvania, talks of erecting at Bristol, Tenn., a large tannery.

It is stated that Mr. Burleigh, of Ohio, will erect a handle factory at Bristol, Tenn., next year.

TEXAS.

The Missouri Pacific R. R. will rebuild their round-house, at Alvarado, Texas.

There is talk of a company being organized at Austin, Texas, to erect an electric light plant.

Joseph H. Brown, Fort Worth, Texas, will erect a large building, to cost with ground, \$90,000.

It is reported that a mill will be established at Weatherford, Texas, to manufacture castor oil.

It is stated that arrangements have been made at Decatur, Texas, to erect a roller flour mill, work to begin within ten days.

An electric light plant is being erected at Tyler, Texas.

It is reported that the Galveston, Harrisburg & San Antonio Railroad Co. will establish large shops at Houston, Texas, to employ from 800 to 1,000 hands.

VIRGINIA.

Bills have been introduced in the Virginia Legislature to incorporate the Fauquier and Rappahannock Railroad Co., and the Lynchburg and Staunton River Railroad Co.

J. H. Rankin, Stuart's Draft, Va., whose woolen mills were recently reported as burned, loss \$20,000; will rebuild them if a suitable site can be secured.

The Bridgewater Manufacturing Co., Bridgewater, Va., are building an addition to their woolen mill and will place new machinery in it.

WEST VIRGINIA.

James Copen, Parkersburg, W. Va., will enlarge his brick-yard.

BURNED.

Bell & Paul's foundry and machine works, at Staunton, Va., damaged \$3,000 by fire.

The Colorado foundry, at Austin, Texas, owned by Charles Jones, damaged by boiler explosion.

F. A. Felton & Co's foundry and machine shop, at Texarkana, Ark. Loss \$3,000.

Grist mill and gin, of J. A. Norris, Apex, N. C. Loss \$4,000.

Love & Smith's saw mill at Rep, Ala.

Mr. Turner's steam gin and grist mill at Dickson, Ala.

Austin Babin's gin at Prairieville, La. Loss \$2,000.

The gin house and saw mill of R. K. Reeves, High Shoals, Ga. Loss \$1,500. Will rebuild.

W. H. Reed's steam saw mill and gin, eight miles from Dyersburg, Tenn.

T. G. Love's saw mill, near Cllettsville, Ala.

The gin and mills of Samuel Blackwell, Danville, Ala. Loss \$5,000.

L. F. Hughes' grist mill and gin, near Brunson, S. C. Loss \$2,500.

Ginnery of James Gunn, Eureka, Texas. Loss about \$3,000.

Jacksonville Soap & Fertilizer Works, owned by Peters & Davis, Jacksonville, Fla.; loss \$2,000. The works were new, as reported in last week's paper. Will rebuild at once.

H. Wolfe's gin, grist and saw mill, at Sandy Run, S. C.

W. J. Crowder's ginnery, in Caddo parish, La.; loss \$2,000.

Gin of Frank J. Mott, Dover, Ala.; loss \$1,500.

W. L. Langley's gin and grist mill at Camp Hill, Ala.

E. L. Austin's gin and mill, at Elliott, Miss.

The steam saw mill of Spencer Graves, Ty Ty, Ga.

LOCKWOOD, GREENE & CO. MILL ENGINEERS

Office, 65 Westminster St., Providence, R. I.

Carefully prepared plans, specifications and estimates furnished for the construction, equipment and organization of new mills and the revision and improvement of old.

Large Manufacturing Co.

MERIDIAN, MISS., Dec. 15, 1885.

Editor Manufacturers' Record:

A stock company has been formed to succeed the Progress Machine Works, under the name of Progress Manufacturing Co., our business having increased so largely that we found it necessary to greatly enlarge capacity. It is not yet certain whether the company will be capitalized at \$100,000 or \$150,000. Nor is the location yet decided, though probably it will remain here; yet for a few weeks, however, we are open to inducements to go elsewhere in this State or Alabama. We have from a rising Alabama city, an offer of a donation of land for works, and other special inducements.

The business of the "Progress Manufacturing Co." will be the manufacture of cotton presses and engines, and a general line of job work; and the company starts out with a certainty of success, succeeding as it does to our already large growing and profitable trade. Our works, wherever located, will consist of new foundry, machine and wood shops, with a capacity to employ 100 or 150 men. We shall have quite a large proportion of our outfit to purchase new.

G. W. SOULE.

Large Tobacco Factory.

RICHMOND, VA., Dec. 9, 1885.

Editor Manufacturers' Record:

Our new factory will be 130x45 feet, with wing 45x48 feet, all six stories high, and will be occupied during January.

T. C. WILLIAMS & CO.

Will Rebuild Tannery.

CHARLOTTE, N. C., Dec. 14, 1885.

Editor Manufacturers' Record:

Our tannery was only partly destroyed by fire, and shall rebuild at once. The loss was over-rated by the press, and is only about \$3,000, partly covered by insurance.

SCHIFF & BRO.

Enlarging Works.

WILMINGTON, N. C., Dec. 15, 1885.

Editor Manufacturers' Record:

We are making our works double the size before, and will add a new enterprise to our works, which will be to make a black paint from our charcoal dust and our wood creosote oil mixed, which has given entire satisfaction.

LUDVIG HANSEN,

Carolina Oil & Creosote Co.

Enlarging Tobacco Factory.

BETHANIA, N. C., Dec. 14, 1885.

Editor Manufacturers' Record:

We have enlarged our factory and are remodeling it throughout, and have added steam power, and will put in latest improved machinery, to double our capacity.

O. J. LEHMAN & CO.

Oil & Fertilizer Co.

CONYERS, GA., Dec. 14, 1885.

Editor Manufacturers' Record:

We have a subscribed capital of \$10,000; will have chartered privilege of raising to \$50,000.

CONYERS OIL & FERT. CO.

Two Saw Mills.

GRAYSON, KY., Dec. 9, 1885.

Editor Manufacturers' Record:

We are now erecting two saw mills here, and intend to put up a stove mill after awhile.

FISCHERS & LEIBERMAN.

HIGHLANDS, N. C., Dec. 14, 1885.

Editor Manufacturers' Record:

I expect to start a tannery at Highlands in the spring.

W. W. COBB.

Soap and Fertilizer Works.

JACKSONVILLE, FLA., Dec. 10, 1885.

Editor Manufacturers' Record:

Mr. E. E. Davis and myself have started soap and fertilizer factory under the firm of Peters & Davis, and to be known as Jacksonville Soap and Fertilizer Works, but we were burned out yesterday. Now we will be able to resume work in three to four weeks.

C. PETERS.

Will Rebuild.

ALBANY, GA., Dec. 13, 1885.

Editor Manufacturers' Record:

We expect to rebuild our mills and shops, though it may take us some time to determine upon the plan and plant best suited to our wants.

M. A. F. TIFT & CO.

Water Works.

PENSACOLA, FLA., Dec. 14, 1885.

Editor Manufacturers' Record:

We have the contract and have commenced the construction of water works for Pensacola. The supply is from artesian wells, with stand-pipe 200 feet above tidewater.

SAML. R. BULLOCK & CO.

BRIDGEWATER, VA., Dec. 14, 1885.

Editor Manufacturers' Record:

We are building a new store-room, 24x40 feet, 2 stories high, for the purpose of storing wool and finishing blankets; also for office. We will add two more blanket looms (Davis & Furber make), on the first of January.

BRIDGEWATER MANUFACTURING CO.

ROCKY MOUNT MILLS,

ROCKY MOUNT, Dec. 14, 1885.

Editor Manufacturers' Record:

We are refitting the mills and putting in new water works, etc., and will soon be running, but we have not yet put in new machinery. This will soon follow on.

B. H. BUNN.

New Foundry and Shops.

PLYMOUTH, N. C., Dec. 14, 1885.

Editor Manufacturers' Record:

I shall move my works on the river in the spring; will erect a foundry and build brick shops. Shall continue the manufacture of engines, grist, saw and shingle mills, and machinery generally. Will also add a planing mill, and will manufacture ash and walnut balusters, newels, mouldings, scroll work, etc. The works will be known as the "Perry Machine Works," instead of Plymouth Iron Works as now. The site for the works is already secured, and I will go to work on the foundry at once. Will run the works with one 40-horse-power engine and one 15-horse-power engine.

T. A. PERRY.

STATESVILLE, N. C., Dec. 12, 1885.

Editor Manufacturers' Record:

I wish to call the attention of the readers of your valuable journal to this enterprising and prosperous town, which, during the present decade, has in a quiet way made phenomenal progress in manufactures and improvements of various kinds, but lacking in capital to fully use her advantages in location, climate, soil and railroad facilities. I know of no town or location in the South, where a half-million and more of capital could be employed in banking, to handle the cotton, tobacco, wheat, corn, flour, stock and other farm products, and to stimulate manufactures of various kinds, that existing and contemplated. Added to other improvements we have a new and spacious brick hotel, with all modern improvements—will be completed by January 1st—erected by Mr. W. M. Cooper, who is likewise engaged in a banking business, under the firm of Cooper & Brown. These gentlemen, who standing high for integrity, and possessing much capital, would willingly unite with others to organize into a National Bank, for which no better opening exists.

E. B. DRAKE.

A Prosperous Mill.

MOUNTAIN MILLS, ALA., Dec. 12, 1885.

Editor Manufacturers' Record:

Our Mr. Brandon is now East, in Lowell and Providence, to buy ten cards, railway heads, drawings, slubbers, and 3,000 spindles, to amount of \$12,000, in addition to our put in of \$25,000 last year. When we get this in we expect to have one of the nicest little spinning mills in the South, to spin five bales of cotton per day, and expect to make money.

W. H. CHERRY & CO.

BRISTOL, TENN., Dec. 12, 1885.

Editor Manufacturers' Record:

Mr. Burleigh, of Ohio, expects to put up a handle factory at this place early next year; and Mr. Myers, of Pennsylvania, speaks of putting up a large tannery. And just here I will say that I can offer to any party who wishes to engage in a large tannery, a large quantity of chestnut oak bark, and am of opinion that 500,000 cords of this bark can be had tributary to Bristol. The South Atlantic & Ohio Railroad, from this place to the immense coal fields of Scott and Wise counties, Va., is now being built by the Bailey Improvement Company, of Boston, Mass., and the work is being pushed with energy, and by the early part of the summer of next year the cars will run to Estellville, Va., where miles of variegated marble lies along the side track so close that it can be loaded from the quarry on the cars. This road will open up the finest coal, iron and timber lands, to be found on the American Continent.

A. A. HOBSON.

Condition of the Blast Furnaces of the United States, December 1, 1885.

The heavy increase in the demand for pig iron has caused the blowing in of quite a number of furnaces that have been idle for some time. In its monthly report of the condition of the blast furnaces of the United States, December 1, the Iron Age makes the following showing as to the condition of the furnaces December 1, 1885:

FUEL.	IN BLAST.		OUT OF BLAST.	
	No.	Weekly capacity.	No.	Weekly capacity.
Charcoal.....	61	8,360	163	15,582
Anthracite.....	94	26,816	128	28,438
Bituminous.....	99	49,790	122	44,917
Total.....	254	84,966	413	88,937

This shows a marked change since the first of November. At that time the record was as follows:

FUEL.	IN BLAST.		OUT OF BLAST.	
	No.	Weekly capacity.	No.	Weekly capacity.
Charcoal.....	58	8,352	167	15,670
Anthracite.....	85	24,270	136	29,956
Bituminous.....	89	44,101	134	50,616
Total.....	233	76,723	437	96,252

Twenty-one more furnaces are in blast on the 1st of December than there were on November 1; three more charcoal, with about the same weekly capacity, as a month ago; eight more anthracite, with 2,600 tons more weekly capacity, and 10 more bituminous, with 5,700 tons more product weekly. This makes an indicated increased output of some 8,300 tons a week of anthracite and bituminous iron since November 1, and an inspection of our columns of industrial items will indicate in the statements of furnaces blowing in or about to blow that this will be very much increased by January 1. The increase in anthracite furnaces has been chiefly in New York and the Lehigh Valley. In bituminous it is quite general, many districts showing a slight increase.

A year ago 88 anthracite furnaces were in blast, with a weekly capacity of 22,963 tons, and 93 bituminous furnaces, with 43,834 tons capacity—that is, more furnaces are in blast this year, with a largely increased weekly make. On the 1st of November, 1885, the stocks of pig iron, though more furnaces with a greater capacity were in blast, were somewhat less than a year ago. The stocks December 1, with still more furnaces and capacity, are less than a month ago, and many furnaces are sold ahead, especially those making Bessemer pig, a condition that was not known a year since.

The number of anthracite and bituminous furnaces in blast at the beginning of each month of the present year, together with their weekly capacity, is as follows:

	ANTHRACITE.		BITUMINOUS.	
	No. in blast.	Capacity per week.	No. in blast.	Capacity per week.
January 1.....	86	21,564	82	36,810
February 1.....	81	21,189	87	46,653
March 1.....	86	22,889	91	46,774
April 1.....	82	21,704	90	45,655
May 1.....	80	20,739	95	43,397
June 1.....	79	19,834	94	44,498
July 1.....	81	20,444	92	43,945
August 1.....	77	20,530	86	44,845
September 1.....	78	20,190	88	49,663
October 1.....	75	20,318	88	43,234
November 1.....	86	24,270	89	44,101
December 1.....	94	26,816	99	49,790

A LETTER from Philadelphia says that "during the past ninety days textile mills have been either built or projected which, if placed in a line, would reach nearly a half mile. These mills are for the manufacture of carpets, hosiery, upholstery, gingham, jerseys, and, in fact, all kinds of textile goods usually made in this market. The active fall trade has stimulated manufacturing activity, although the high price of wool to the extent to which it enters into textile manufacturing has made manufacturers somewhat cautious. A great deal of new machinery is already contracted for, and will be placed in position as soon as complete. A large amount of fire-proof material has been contracted for, besides elevator work, architectural iron work, electrical lighting work, heavy and light engines and boilers and other material."

In our last issue we copied an article on the railroad industries of the South. It happened that the article went in as if it was original, when it should have been credited to the MANUFACTURERS' RECORD, of Baltimore. The RECORD is one of the very best of papers, and is so frequently copied from that we are obliged to make this confession, even were we disposed to let it pass by.—Athens (Ga.) Chronicle.

J. H. DUNSTAN, mayor of Roanoke, Va., has resigned and removed to Calera, Ala., to take the position of engineer and superintendent of the Calera Land Company.

CORRESPONDENCE relating to the manufacturing, mining, lumbering and all other material interests of the Southern States is solicited. Reaching so many capitalists in all parts of the United States seeking profitable investment in the South, the MANUFACTURERS' RECORD offers an excellent chance for the people in that section to place the advantages of each locality before those likely to be interested. We will take great pleasure at all times in telling what has already been accomplished in the South, and showing up the opportunities of doing still more.

Automatic Cut-off Engines.

We are indebted to Messrs. Barney & Kilby, of Sandusky, Ohio, for the following interesting facts in regard to the advantages of automatic engines, and a description of the Neubert Automatic Engines built by them.

The advantages of an automatic engine consist in the fact that the valve admits to the piston, at the commencement of the stroke up to the point of cut-off, the full boiler pressure, less a small percentage for friction in the steam pipe, and the balance

free steam passages from the chest to the cylinder up to the point of cut-off, free exhaust to prevent back pressure, and reduced friction of the valves and all parts of the engine.

The cost of fuel is now a very important item with every steam user, and will become more and more so, therefore it is of the greatest importance that he provide himself with an engine which will give the most power with the least amount of fuel consumed. It is also in the interest of the manufacturer to possess a machine which is in every way reliable as to regulation of speed, positive in

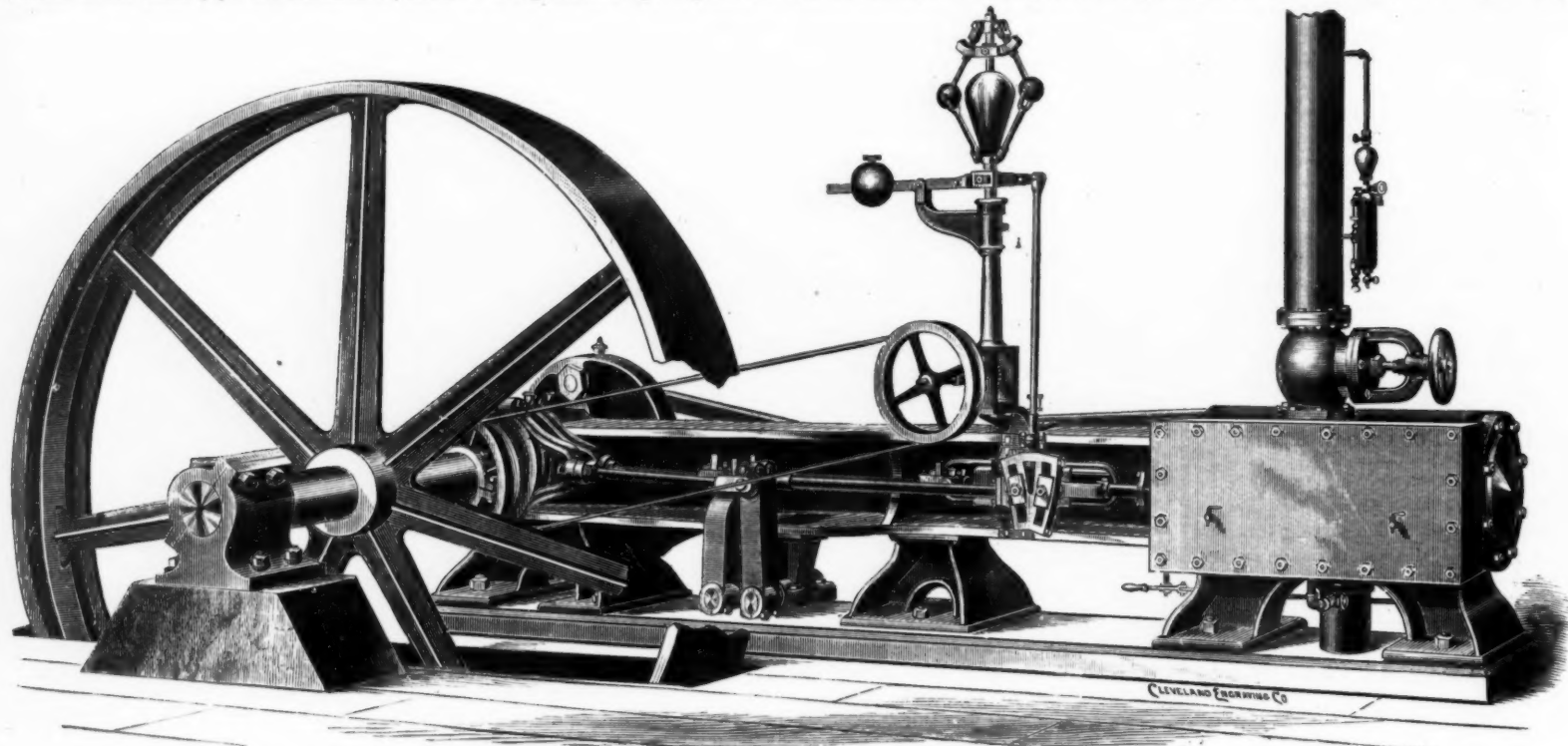
way, giving a positive lead and exhaust, without regard to the point of cut-off. The cut-off valves, which are two in number, are also operated from the motion of an eccentric upon the crank shaft. The main valve has a balancing bar with an equilibrium or balancing ring in its back, which works steam-tight against the cover of the steam chest. By this means the greater part of the pressure on the back of the valve is prevented and the same nearly balanced.

The cut-off valves are placed on the back of each end of the main valve, and are made hollow, with wearing faces on top and

one of the features of their engines. The guides are part of the bed and have very large wearing surfaces; they are planed perfectly true with the cylinder, so they cannot possibly get out of line.

A fly-ball governor is used, which is driven either by belt chain or gearing from the main shaft and is connected directly to the cut-off mechanism by a vertical rod and ball joint. Messrs. Barney & Kilby, in their catalogue, say:

"Since George Corliss, in 1848, first invented his device for automatically cutting off the steam and using it to the best advantage under all conditions, or in other words,



AUTOMATIC CUT-OFF ENGINE.

of the stroke is finished by the expansion of the steam so admitted. The point of cut-off is conditioned by the variation of the load; that is: if the engine has a light load to perform, it will have a tendency to increase its speed, and as the speed of the governor is increased with the speed of the engine, it will act upon the valve gear in such a manner as to cut off the steam sooner in the stroke, and if the load is heavier it will tend to decrease the speed of the engine and governor and admit more steam, thus at no time allowing more steam to pass into the

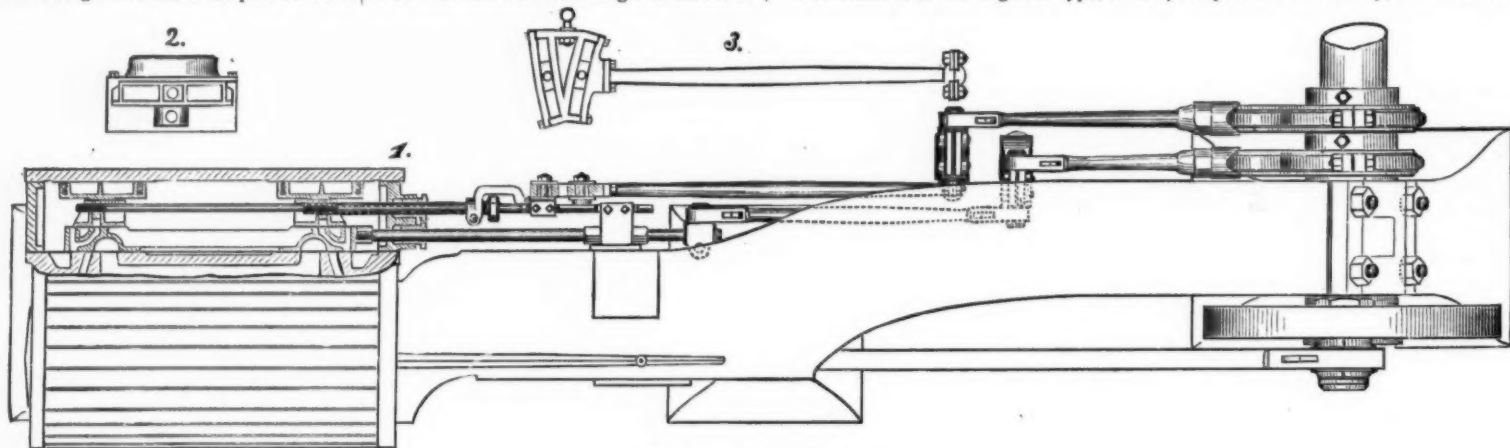
its movements, and least liable to get out of order.

The engine illustrated and described in this article is said to be unsurpassed in its simplicity and effectiveness. It has been designed with the view of developing the greatest power with the least cost in fuel, and one which does not require a specially educated engineer to keep it in running order. In this engine the fewest possible parts are used, and the whole valve gear and cut-off mechanism is placed in full view of the engineer. It is also accessible for oiling and attention

bottom, which are closely scraped to fit between the back of the main valve and balancing bar, steam passing through them to the passages of the cylinder; the lower face is perforated by a slot-opening to conform with the multiple ports in the back of the main valve, thus balancing the cut-off valves almost perfectly. The cut-off valves are operated independently from one another by one rod passing through the other, which is a hollow tube, particulars of which will be described further on.

The frame is of the I girder type, which

constructed the first automatic engine, there have been numerous devices invented and patented for the same purpose with various success. The tendency at first has been altogether toward applying tappets, and cams, and trips of various forms and shapes, in all sorts of combinations to raise, slide or drop the steam valves. In nearly all these engines it is necessary to apply separate exhaust valves, and consequently duplicate mechanism and contrivances to operate them, making the machine very complicated and costly, and troublesome to



AUTOMATIC CUT-OFF ENGINE.

cylinder than is necessary to perform the work required.

The best economy attainable is when the mean effective pressure is highest and the terminal pressure lowest. If steam in a high pressure cylinder is expanded as low as the atmosphere, there is no more power in it and the highest economy is reached, excepting with the use of a condenser. Therefore it is of the greatest importance that the several parts of an engine should be so constructed that there will be the least conduction of heat from the steam by the cooling of the cylinder, small clearances,

at all times while under motion. There are no springs to get lame, no tappets and cams to clatter, and no weights to depend upon. The movement is rigid and positive, while it is very sensitive in the controlling of the steam and regulating of the cut-off. The valve gear is so simple in all its details that it is almost impossible to get it out of order if the least care is taken.

The main valve is of the long double slide valve type, with multiple ports in the back at each end, through which the steam passes into the cylinder. It is operated from an eccentric on the crank shaft in the usual

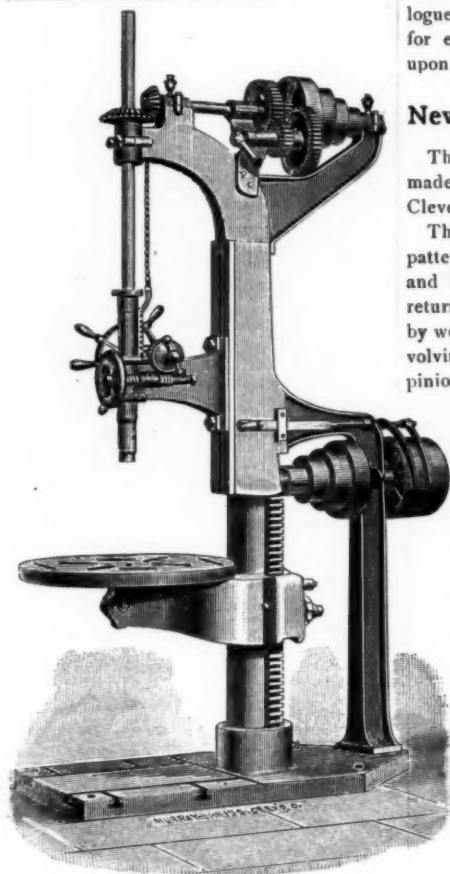
is the strongest form iron can be formed into; it is proportioned according to the best known rules of strain and stress, with ample metal judiciously distributed. The main journal and its pedestal are cast on to the frame, making it one solid casting, the only joint being between the cylinder and frame, which are strongly bolted together. The main journal is the angular style box, lined with best genuine Babbitt metal and has a very large wearing surface. This style journal, which has been adopted by many first-class engine builders, has been so favorably received that they have adopted it as

keep up. This class of engines are limited in their speed on account of the non-reliability of these devices, the tappets and cams, etc., not being positive in their performance when higher speed is attempted. All cylinders with separate exhaust ports must necessarily have an increase in clearance or waste room, conditioned by four openings between the valve seats and the bore of the cylinder, against which where only two ports are used; the former being indisputably detrimental to good economy.

"In June, 1839, the first patent on a so-called shaft, or centrifugal governor, was

issued to J. D. Custer. His governor consisted of two levers, pivoted to the arms of the balance wheel, on the ends of which were fastened weights. These levers were also connected by rods with projecting lugs on opposite sides of the eccentric. When the engine was put under motion the centrifugal force of the weights would revolve or shift the eccentric and vary the position and movement of the valve, precisely as a large number of this class of governors lately patented.

"Most of all the shaft governors are dependent on weights for their centrifugal force and springs for their centripetal force, making them liable with the least change of tension in the springs, (which cannot fail when under continuous action,) to frequently become more or less deranged, and to vary the motion of the engine, they requiring constant and careful attention.



DRILL PRESS.

"Many other contrivances are in use for the same purpose, but all are much complicated and require especially educated engineers to keep them in running order; others are entirely valueless.

"In the engine illustrated, valves are driven from fixed eccentrics on the main shaft. At a proper distance between the governor and the main shaft is placed a rocker arm, to which is connected the short rod of the cut-off eccentric; on the opposite side of this rocker arm is pivoted with a ball journal the link rod. This rod is bolted at its other end to a double link, which is constructed of gun metal, and contains two slots standing obliquely to one another.

"The cut-off valves are operated each by an independent rod, one being a hollow tube which operates one, and the other a steel rod which passes through this hollow tube and operates the other cut-off valve. The latter rod is spade shaped on its outside end, which slides in a guide. This holds it in a proper position for the link to act upon. Over part of this spade is fitted one end of a yoke, the other end of which is clamped to the hollow tube valve rod, allowing the yoke and tube to move horizontally, but holding it firmly vertically. Over steel wrist pins fastened to this yoke and to the spade, are fitted steel sliding blocks, which are fitted nicely into the slots of the link, which is raised or lowered by the governor as the speed and power of the engine may condition, it being connected with the horizontal lever of the governor by a vertical rod.

When the motion of the engine has a tendency to increase or decrease, the governor will raise or lower the link, the slots of which are oblique, and change the position of the cut-off, thus regulating the speed and power of the engine. All wearing faces are so constructed as to pass over the edges of one other, thus preventing the wearing of shoulders."

Messrs. Barney & Kilby, who manufacture these engines, are machinists, founders and boiler makers, builders and contractors of roller flouring mills and general mill furnishers. Their works were established in 1846. With a long experience and ample capital, they are enabled to plant and equip a complete "plant" of machinery in any part of the South, and will furnish plans and estimates on engines or machinery upon application. Steam users and engineers should send for their handsomely illustrated catalogue, containing valuable knowledge, rules for engineers and firemen, etc., etc. Sent upon application.

New 26 & 28-inch Drill Presses.

The illustration shows a new drill press made by Jno. S. Oram, 165 River street, Cleveland, Ohio.

These drills are made from entirely new patterns, and are complete with all the latest and best attachments. They have quick-return feed, steel spindles, counter-balanced by weight inside of column; adjustable revolving arm, raised and lowered by rack and pinion; and table turns in arm, and when swung aside, the bed-plate may be used for a drilling table, the surface being at right angles with the spindle. The manufacturer guarantees them. They are made in first-class style, and guaranteed to give satisfaction.

The following are the leading dimensions:

The 26-inch drill has a column 7 inches in diameter, 7 feet 2 inches high, swings 26 inches, table 25 inches in diameter; from table to end of spindle 36 inches; from base to end of spindle, 50 inches; spindle, 1 7/16 inches in diameter; bevel wheel, 7 inches in diameter, runs two to one; cone pulleys, 4 changes, 4 1/2, 6 1/2, 8 1/2 and 10 1/2 inches in diameter; tight and loose pulleys 11 inches in diameter, for 3-inch belt. Weight 1,600 pounds.

The 28-inch drill has a column 7 inches in diameter, 7 feet 2 inches high, swings 28 inches; table 26 inches in diameter; balance same as the 26-inch drill. Weight 1,700 pounds.

The Challenge Poultry Coop.

The accompanying cuts represent a very convenient coop for use in shipping poultry. It is shown open, ready for use, and folded for shipping. It is said to possess advantages over any other coop, getting the poultry to market in good shape, thereby enabling the shipper to realize a higher price for them. The coop is light and at the same time very strong. It is made of wire and wood, and woven in such a manner as to make it unbreakable.

The Challenge Poultry Coop is made by the Richmond Fence Co., Richmond, Ind., who will furnish any additional information concerning it desired.

Literary Notices.

CHARMING "JUVENILE."—"Davy and the Goblin" is one of those examples of juvenile literature that make middle-aged people wish they had not been born—until twenty years later. As a sequel to "Alice's Adventures in Wonderland," (and where is the child who has not grown round-eyed over that delightful work?) Mr. Charles E. Carryl has given to his young admirers a perfectly charming story in "Davy and the Goblin."

Wedded to language suited to the comprehension of young readers is found subtle, brightest wit of an order to be enjoyed by children of a larger growth. There are bits of delicious play upon words, such as "The Butterscotchmen," the "Giant Badorful," &c. And the verses which are scattered through this fascinating narrative are such as cast Mother Goose's inane jingles far into the shade.

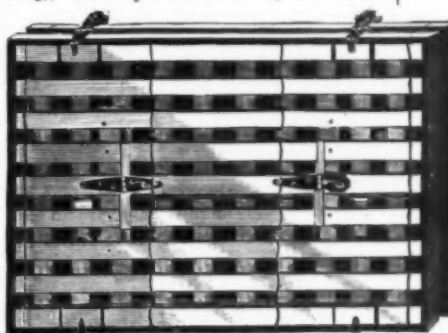
The book is full of the most engaging conceits, the most entertaining episodes, the very refinement of spontaneous and bubbling fun, and the most fascinating absurdities imaginable. There are glimpses of the Arabian Nights, of Robinson Crusoe, of pirates, and of strange people and beasts, all treated in such a fresh and bewitching way as to make "Davy and the Goblin" a mine of delight to every intelligent child fortunate enough to open its pages. To say that the copious illustrations fully carry out the author's ideas is pretty high praise, but not more than is merited. The book is most attractively printed and bound.



THE CHALLENGE POULTRY COOP—OPEN.

In the New York Mail, R. H. Stoddard commends it as "a remarkable story, which in its way is the perfection of what childish fantastic writing should be." It is sold at \$1.50, by Ticknor & Co., of Boston.

THE publishers of The Current announce that, by a recent sale, this leading Western weekly becomes the property of George W. Wiggs, Esq., a Chicago capitalist, and that its entire management will be entrusted to Alva E. Davis, Esq., a publisher of experience and wide acquaintance and interests. The editorial direction will remain in the hands of Gustavus C. Matthews, formerly of the Louisville Courier Journal and the Indianapolis News (who has been an associate editor from the founding of the paper in 1883), and of John McGovern, late of the



THE CHALLENGE POULTRY COOP—FOLDED.

Chicago Tribune, who assumed the duties of an associate editor of the Current in July, 1884.

MESSRS. TICKNOR & Co. start off finely in the line of illustrated books with a beautiful edition of Childe Harold's Pilgrimage, upon which nine of our most accomplished draughtsmen and seven of our most skilful wood-engravers have expended the resources of their art. Comparisons are odious, as we all know, and we shall not indulge in them by comparing this illustrated edition of a favorite poet with any other illustrated edition of any other favorite poet. What we will say, however, is that given our choice between this poem and any other poem, or poems, that have been, or likely to be, published during the present season, we should give the others the go by, and select this,

not merely as the most to our special taste, but as one of the noblest and greatest poems in the whole range of English poetry. It is not the fashion to admire Byron now, and it is the fashion to pretend to admire Wordsworth. One may admire both without instituting comparisons between them, and for Wordsworth's sake they never should be instituted, for the author of Peter Bell was a poet of one order and the author of Childe Harold was a poet of another and a much higher order, as every reader of Byron feels, in spite of all that Mr. Swinburne, and Mr. Arnold, and the rest of the Wordsworthians may say to the contrary. He is the greatest elemental force in English song since Marlowe, and not to know this is to have read all the poets that come between the two in vain. There is a wild, fiery, passionate life in his work even when it is most careless which no other English poet except Shakespeare ever attained, and it is refreshing to turn from the finickin, elaborate, rococo, make-believe verse of the present period to his manly and magnificent poetry. He is

at his greatest, we think, in the third and fourth cantos of Childe Harold, who as an ideal creation was fitly described by Shelley as the Pilgrim of Eternity.

The illustrations in this beautiful edition of Childe Harold are not in the fantastic art manner of the period, but are conceived and executed in the good, old-fashioned, manly style that characterized the best days of drawing and en-

graving. They are for the most part beautiful, and when they do not reach that ideal excellence they are in all cases picturesque and intelligent. There are no crotchets in them, for the artists who made them were content to illustrate the text in the direct method in which it was written. From the nature of the poem they are largely landscapes, the special features of each verse being happily caught with artistic gradations of light and shade. Taken as a whole, the effect they have upon the mind is one of simple, serene loveliness. And they have a quality which we miss in much of the black and white work of to-day, they will bear looking at more than once. They should be studied as Childe Harold should be read, over and over again.—Mail and Express.

PRANG'S CHRISTMAS AND NEW YEAR CARDS.—Never before has the superiority of Prang's line of cards, over all others been so clearly admitted on all hands as this year, not alone in the excellence of the lithographic work, which has always stood high, but also in the variety and artistic treatment of subjects.

They come again in plain cards, single and double, as well as fringed, single and double, to which forms a few novelties have been added.

The fringes are rich and heavy, and are selected with excellent taste.

The beautiful backs, for which Prang's line is distinguished, again hold their own, and the literary matter has had the most careful attention, poems by Mrs. Celia Thaxter, Joaquin Miller, Mrs. E. S. Forman and Mrs. Margaret Deland being conspicuous as regards the literary value of this season's goods.

It is probable that more of Prang's cards are sold than of all other publishers combined. In many stores no others are carried, and when there are others, the handsomest cards and souvenirs as well as the larger part will be found to bear the well-known name of "L. Prang & Co., Boston."

AMONG other handsome holiday books, Messrs. Estes & Lauriat, Boston, have issued an edition of Keats' "Eve of St. Agnes," with twenty-four new and original illustrations, by

vance, and the promise of a stiff combination for the coming year has been worked to good effect.

Lead has followed the St. Louis market, and pig, bar and shot have been materially advanced.

General trade is in good shape. Buying is free, except in certain sections where farmers depend on the wheat crop.

The season of the year is now on us when catalogues and lists come in with the injunction to "note changes." We made an appeal last year which we wish to renew this. That in such cases the changes at least be indicated in some pointed and unmistakable way. It is unfair to the conscientious buyer to inflict the unnecessary work upon him, struggling through the maze of tables and figures to discover possibly some trivial change. It is an easy matter for those who make the change to save this trouble by noting just where it lies in the first place. We quote:

Bar Iron.....	1 80	@ 1 90
Crescent Steel.....	10	@ 12
Plow Steel slabs.....	30	@ 60
No. 27 Sheet.....	3 10	@ 3 20
Galvanized sheet, best.....	50	@ 55
Galvanized Iowa bar wire.....	75	@
Burden Shoes.....	4 00	@ 4 10
Junata Shoes.....	3 70	@ 3 75
Carriage Bolts.....	2 70	@ 2 80
Steel nails.....	3 60	@ 3 70
Iron Nails.....	8	@ 8 1/2
Rope, Sisal.....	12 1/2	@ 14
Rope, Manila.....	75	@ 80
Screws, American Screw Co's list.....	6 50	@ 6 75
Axes.....	26	@ 28 cts.
Cross cut saws, wide, per foot.....	21	@ 23 cts.
Cross cut saws, narrow, per foot.....		

With concessions to large or wholesale buyers.

Chattanooga Iron Market.

Specially reported by LOWE & TUCKER, Brokers and Commission.

CHATTANOOGA, TENN., Dec. 14, 1885.

We have to report continued and firm feeling in pig iron circles. The advance of about \$1.25 per ton has been firmly maintained. The furnaces that have iron to sell are not willing to concede anything from these figures. The opinion is quite general that after the first of the coming year the prices will again advance. Inquiries for round lots are very numerous, but with few exceptions are not taken. General mercantile business is quite dull, with the exception of such articles as enter into the construction of buildings. We continue quotations as last reported:

No. 1 Foundry.....	\$15 50	@ 16 50
No. 2 Foundry.....	14 50	@ 16 00
American Scotch.....	14 50	@ 15 50
Gray Forge.....	13 00	@ 14 00
Car-Wheel Iron.....	13 00	@ 14 00
Ores, Red and Brown.....	1 50	@ 2 25
Furnace Coke.....	2 00	@ 2 30
Nails, car-load lots, 30 days.....	—	—
Bar Iron, per 100 lb.....	—	@ 1 65
Old Rails.....	—	@ 18 50
Old Wheels.....	—	@ 14 50
Wrought Scrap, No. 1.....	—	@ 60
Wrought Scrap, No. 2.....	—	@ 50
Cotton Tie Clippings.....	—	@ —
Cast Scrap.....	—	@ —
Railroad Splices.....	—	@ 1 75
Railroad spikes.....	—	@ 2 00
Light Steel Rails, long ton.....	—	@ —
Barb wire—Cambria link.....	—	@ —
Barb wire—four point galvanized.....	—	@ —
Barb wire.....	—	@ —

St. Louis Iron Market.

Specially reported by W. H. SHIELDS, Pig Iron and Iron Ore, No. 305 Olive Street.

ST. LOUIS, Dec. 14, 1885.

There is considerable inquiry for large lots, especially Bessemer, old rails, wheels, &c., evidently for speculative purposes.

Consumers of the ordinary run of foundry irons are pretty well stocked, and are not in the market to any extent. We quote:

HOT-BLAST CHARCOAL.		
Missouri.....	\$15 00	@ 17 00
Southern.....	17 00	@ 18 50
Ohio.....	—	@ —
COKE AND COAL.		
Missouri.....	15 00	@ 17 00
Southern.....	16 00	@ 18 00
American Scotch.....	17 00	@ 19 00
MILL IRONS.		
Missouri.....	15 00	@ 16 00
Southern.....	15 00	@ 16 00
CAR-WHEEL AND MALLEABLE IRON.		
Southern.....	20 00	@ 24 00
Lake Superior.....	20 00	@ 22 00
MISCELLANEOUS.		
Old Rails.....	20 00	@ 21 00
Old Wheels.....	14 25	@ 14 50
Connellsville Coke, East St. Louis.....	5 30	@ —
Iron, par.....	—	@ —

T. M. Parker, Steel Stamps, Stencils, Hartford, Ct.

TRADE NOTES.

The Louisville and Nashville Railroad.

This immense and well-managed corporation is one of the leading features of the "New South." As it is one of the oldest railroad companies in the South it is also one of the best in the entire country. Its roadbed is on a par with the leading roads in the North, and its rolling stock, both freight and passenger, is unsurpassed. Its good reputation is earned, and is, therefore, well-deserved. The cars of the "Ellen N." run over the Louisville & Nashville tracks in the States of Ohio, Indiana, Illinois and Missouri, to reach the Cincinnati & St. Louis terminals. In Kentucky and Tennessee to reach Nashville and Memphis. In Kentucky, Tennessee, Alabama, Mississippi and Louisiana to reach Columbia, Decatur, Birmingham, Montgomery, Mobile and New Orleans. And in Florida to Pensacola.

Its connections enable it to run through parlor and sleeping cars to every prominent city and section of the country; and in the closeness of its connections the "Ellen N." has no superior. Every effort is made which can add to the comfort of its patrons and to the quickest time to any given point.

The line between Cincinnati and Louisville is a popular one, and over it six daily passenger trains are run, three each way.

A new "folder" has just been issued. It not only gives arrival and departure of all trains to and from all stations on the road, but also much other information. A copy of this valuable guide may be had at any respectable ticket office in the country, excepting, of course, the offices of rival lines. Travel over the Louisville & Nashville. We have; and we commend it.

A Big Pulley.

The Cummer Engine Company, of Cleveland, are making an enormous pulley for the Manchester (N. H.), Cotton Mills. The dimensions of which are 18 feet diameter, rim face 4 feet, weight, when turned, 32,000 pounds. This pulley is designed to go with a Cummer Engine, 24-inch diameter by 48-inch stroke. The Cummer Engine Company have recently secured the services of Mr. Alfred Clarke, as superintendent of their works. Mr. Clarke was formerly superintendent of the Kitson Machinery Company, of Lowell, Mass., and has had an extensive experience in the manufacture of all kinds of machinery.

Mr. Ballentine, the former superintendent of the Cummer Works, has resigned that position to enable him to give his whole attention to the refrigerator and ice machine manufacturing business of that company, that branch of their business having grown to such proportions as to require his entire time.

ATTENTION is directed to the advertisement of the "Norwalk Machine Works," Norwalk, Ohio, which appears in this issue of the MANUFACTURERS' RECORD. J. R. Allen and W. E. Sidnell, the proprietors of this good concern, are gentlemen of long experience in the manufacture of engines of the latest and best designs from 2 1/2 to 65 horse-power; and machinery for stone sawing, hoisting, grindstone turning, sewer pipe, clay smoke pipe, wire mill, saw mill, and are general mill furnishers. They make a specialty of a small, very simple and perfect working engine, that is just the thing for running light machinery such as printing presses, cheese factories, wood sawing machines, meat choppers, cotton gins, corn shellers, etc., etc. They also make a complete and perfect portable engine, so constructed that the engine (proper) can be detached and made stationary. This engine is designed to meet the many requirements of colonists and planters in the South; is

simple, easily understood and not liable to get out of order; and then the prices are astonishingly low considering the fine make and finish. Any further information or prices will be cheerfully furnished by addressing Norwalk Machine works, Norwalk, Ohio.

Infringement of a Patent.

At a session of the United States Circuit Court, held at New York, December 5, 1885, Hon. W. J. Wallace, presiding, the infringement suit of James C. Covert, of this village, as plaintiff, against Sargent & Co., of New York, as defendants, was called and an injunction granted, placing the defendants under bonds for damages, etc. W. H. King, of Albany, attorney for plaintiff; Beach & Son, of New Haven, Conn., attorneys for defendants.

The above is the "beginning of the end" of a series of the most unscrupulous methods ever resorted to in an attempt to rob the rightful owner of valuable patents, and thus wrongfully deprive him of all the gain, profit and benefits that can honestly be gained only by years of patient study, toil and great expense. The deprecating methods referred to have been fully exposed by the leading trade journals of the country, who in so doing held up the delinquents in their

true light in their bold attempt to appropriate the Covert patents, and derive the full benefit of the Covert name and reputation by designating their imitation goods by the deceptive name of "Covered." For these merited and truthful exposures, the press over three years ago were bombastically threatened with all the disastrous effects of a libel suit, but the press, recognizing it as their duty to expose all fraud and deception, persistently continued in their laudable course, and the libel suit lived only in the perverted and confused brain of the "Covereds."—West Troy (New York), Journal and Democrat.

HUGH SISSON & SONS,

140 W. Baltimore St., Baltimore,

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Marble Monuments

Tombs, Altars, Counters, Furniture Slabs, Mantels, Tiles.

Estimates and Drawings Free.

Derby Roll Top AND Flat Top Desks



The BEST and CONSEQUENTLY the CHEAPEST OFFICE DESK IN THE WORLD.

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Manufacturers.

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Illustrated Catalogue on Application.



Wood Split Pulleys.

MILBURN

Gin & Machine Co.

MEMPHIS, TENN., U. S. A.

MANUFACTURERS OF

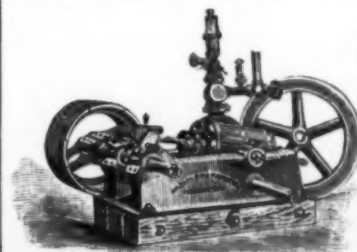
STEAM ENGINES, BOILERS,

(Made by the Tweedle system of hydraulic riveting).

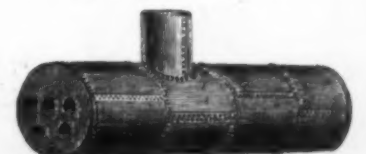
Cotton Gins, Gin Feeders and Condensers,

And the Celebrated "INDEPENDENCE" Wood Split Pulley, with Bushing System.

The best and lightest Pulley made. Every one guaranteed. Send for catalogue, testimonials and price-lists. We have the largest works of the kind in the world. Will send one of our Wood Split Pulleys to any responsible party, for thirty days' trial, free of charge, if it fails to meet our warranty.



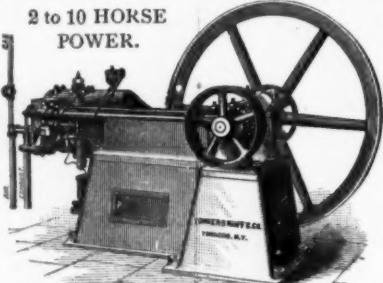
Milburn Gin & Machine Co.



PARKER GAS AND GASOLINE ENGINE.

Guaranteed to Run with Less Gas than Any Other Gas Engine Known.

Always Ready
to Start.
Lighted by Electric
Spark.
Simple.
Durable.
Effective.

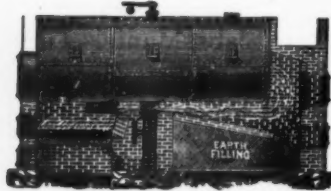


No Boiler.
No Coal.
No Ashes to
be Removed.
No Chimney.
No Engineer.
No Smoke.
No Smell.

No Slide Valve to Get Out of Order. Does Not Hazard Insurance.
No Small Parts to Clog Up. Is Noiseless in Running.
Requires no Matches to Ignite the Gas. Can be Run with Any Kind of Gas.
It is the only Engine that can be run equally as well with Gasoline Gas or Carburetted Air, as with regular fixed gas. Speed can be adjusted while running from 80 to 200 revolutions per minute.

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SOLE PROPRIETOR AND BUILDER.
SEND FOR ILLUSTRATED CIRCULAR AND PRICE-LIST.

JARVIS PATENT FURNACE FOR SETTING STEAM BOILERS.



Economy of Fuel, with increased capacity of Steam Power. Like the Siemens Process of Making Steel, it utilizes the waste gases with hot air on top of the fire. Will burn all kinds of waste fuel without a blast, including Slack Coal, Sawdust, Logwood Chips, &c. Send for Circulars.

Jarvis Engineering Co.,

A. F. UPTON, Treas. and Gen'l Manager,
61 Oliver St., Boston, Mass.

JOSHUA C. COE, Agent for Maryland and Virginia,
O'Donald's Wharf, Baltimore, Md.

SOUTHERN REFERENCES:

Eagle & Phenix Mfg. Company, Columbus, Ga.
Anniston Mfg. Co., Anniston, Ala.
J. P. King Mfg. Co., Augusta, Ga.
Rose Mining Co., Charleston, S. C.
Maryland Pavement Co., Baltimore, Md.
Brush Electric Light Co., Baltimore, Md.
Ettrick, Matocan and Batterssea Mfg. Co's.,
Petersburg, Va.
Rasin Fertilizing Co., Baltimore, Md.
Tanner & Delaney Engine Co., Richmond, Va.
Sibley Mills, Augusta, Ga.

Graniteville Mfg. Co., Graniteville, S. C.
Charleston Haggling Co., Charleston, S. C.
P. H. Mayo & Bros., Richmond, Va.
Phosphate Mining Co., Beaufort, S. C.
Brush Swan Electric Light Co., Norfolk, Va.
Columbus Ice & Refrigerator Co., Colum-
bus, Ga.
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PHOSPHOR-BRONZE

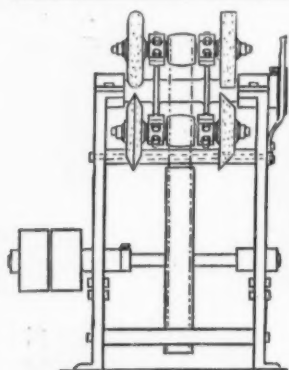


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Wire Ropes, Wire Cloth, Castings, Ingots, etc.
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Sole Manufacturers of Phosphor-Bronze in the United States.



BLAISDELL'S

Eight Wheel Emery Machine,

FOR GRINDING

ALL KINDS OF IRREGULAR CUTTERS.



J. H. BLAISDELL, Manufacturer of WOOD-WORKING MACHINERY.

SPECIAL ATTENTION GIVEN TO REPAIRING.

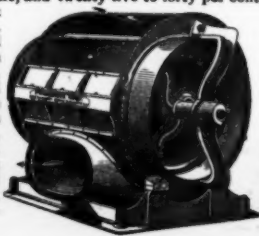
Office and Factory, 550 & 552 W. 25th Street, New York.

THE MACKENZIE PATENT CUPOLA AND BLOWER

Send for Circular to SMITH & SAYRE MFG. CO., Proprietors, 245 Broadway, N. Y.



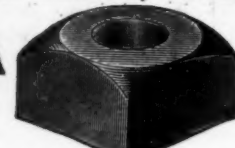
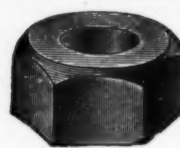
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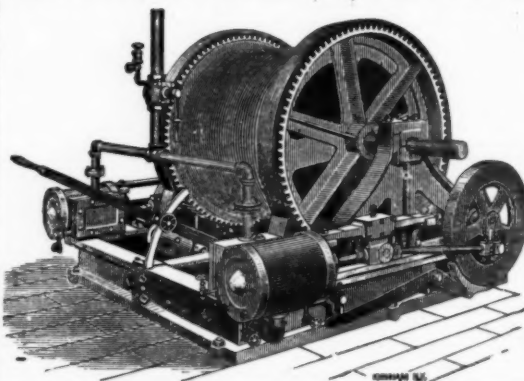
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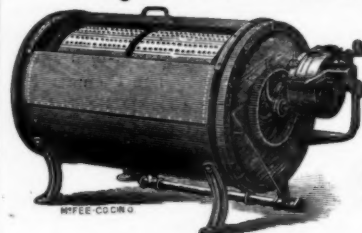
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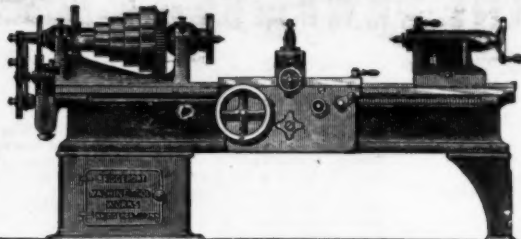
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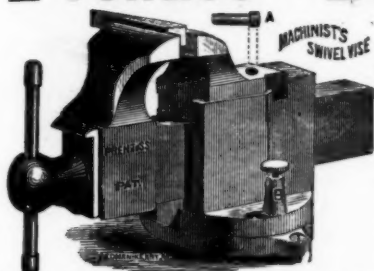
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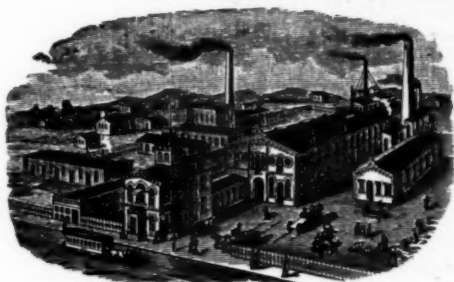
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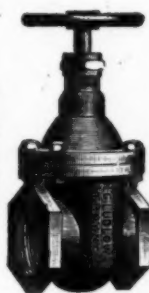
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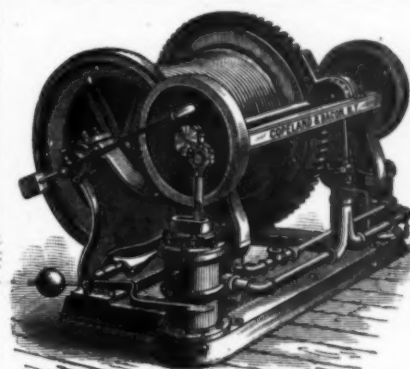
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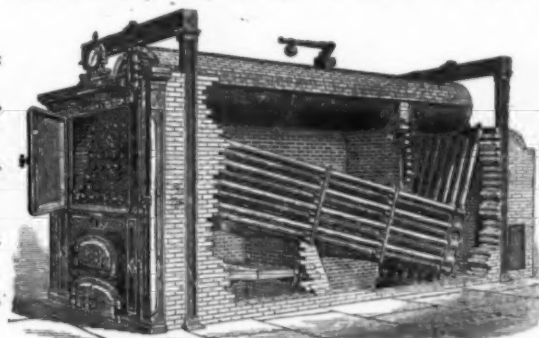
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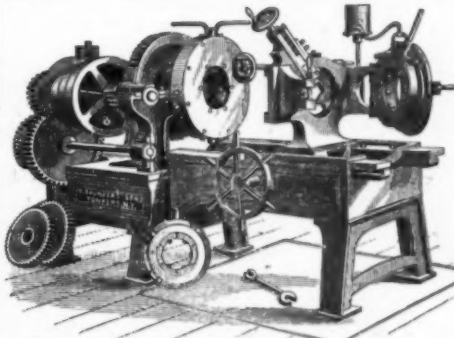
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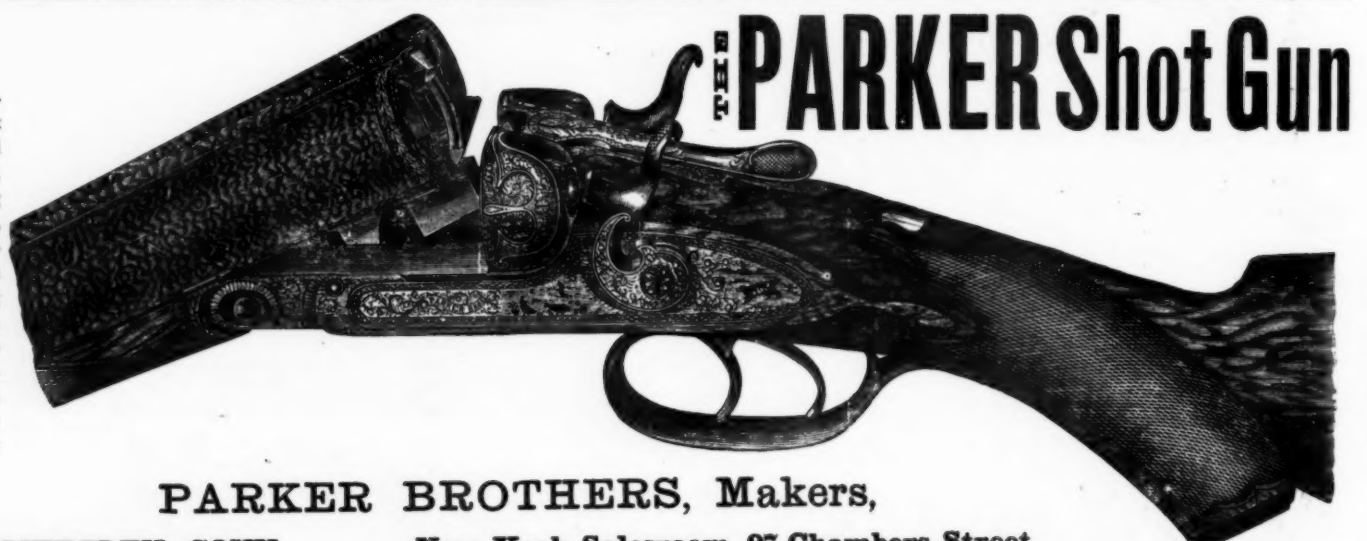
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Loose Pin, no Acorns..... dis 70% 10% 10%
Loose Pin, Acorns..... dis 70% 10% 10%
Loose Pin, Acorns, Japanned..... dis 70% 10% 10%
Loose Pin, Acorns, Jap'd, Plated..... dis 70% 10% 10%

Wrought Iron.
Fast Joint, Narrow..... dis 60% 10% 10%
Fast Joint, Lt. Narrow..... dis 60% 10% 10%
Fast Joint, Broad..... dis 60% 10% 10%
Loose Joint, Broad..... dis 60% 10% 10%
Table Butts, Back Flaps, &c..... dis 60% 10% 10%
Inside Blind, Regular..... dis 60% 10% 10%
Inside Blind, Light..... dis 60% 10% 10%
Loose Pin, Wrt..... dis 60% 10% 10%
Loose Pin, Light..... dis 60% 10% 10%

Spring Hinges.
Geer's Spring and Blank Butts..... dis 30%
Hart Manufacturing Co..... dis 60% 10% 10%
American Spring Hinge Co's..... dis 25%
Gem Spring Hinges..... dis 25%
Blind Butts, Shepard's, Nos. 50 and 60..... dis 70%
Blind Butts, Shepard's, No. 50..... dis 70%
Blind Butts, Shepard's, No. 75..... dis 70%
Blind Butts, Lull & Porter..... dis 80%
Blind Butts, Huffer..... dis 80%
Blind Butts, Clark's, Nos. 1, 3, 5..... dis 80%
Standard Lull & Porter..... dis 75% 10% 10%

PINS.
Humason, Beckley & Co's..... dis 55%
Sargent & Co's..... dis 55%
Hotchkiss..... dis 25%

BUTCHER'S CLEAVERS.
Humason & Beckley Mfg. Co..... dis 25%
Bradley's..... dis 25%
Beatty's..... dis 25%

CAN OPENERS.
American..... dis 75% 10% 10%
New Idea..... dis 75% 10% 10%
No. 4, French..... dis 25%
No. 5, Iron Handle..... dis 25%
Sardine Scissors..... dis 25%
Sprague, No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

CAPS, PERCUSSION.
U. M. C., F. C. trimmed..... 50c
U. M. C., F. L. ground..... 70c
U. M. C., Cen. fire ground..... 70c
U. M. C., Double W. Proof..... 1.40
G. D. & S. B..... 33c
E. B. 1-10, Eley's..... 60c
Musket, in 10's..... 55c
Hicks Ground Edge in Brass Boxes..... 55c

CARTRIDGES.
Rim-fire, pistol size..... dis 60% 10% 10%
Central Fire, pistol size..... dis 40% 10% 10%
"Military"..... dis 25%
B. B. Caps, Round Balls..... 1.45
"Swaged Conical"..... 1.75

NEW LIST ON CARTRIDGES.
Rim-fire, 22 short..... \$ 6.00
" 32 "..... 15.50
" 38 "..... 18.00
" 41 "..... 17.50
Central Fire—32, \$11.00; 38, \$13.50; 41, 15.00; 44, \$19.00

CARDS.
Horse and Curry, new list, July, 1881..... dis 10%
Cotton, new list, July, 1881..... dis 10%
Wool, new list, July, 1881..... dis 10%

CARPET STITCHERS.
Cast Steel, Polished..... dis 50% 10% 10%
Cast Iron, Steel Points..... dis 50% 10% 10%
Bullard's..... dis 25%

CASTERS.
Bed..... dis 60%
Plate and Shallow Socket..... dis 25%
Deep Socket..... dis 25%
Martin's Patent (Phoenix)..... dis 25%

CATTLE LEADERS.
Humason, Beckley & Co's..... dis 60% 10% 10%
Sargent's..... dis 60% 10% 10%
P. S. & W..... dis 25%

CHAIN.
German Halter and coil Chain..... dis 50% 10% 10%
Trace, Breast and Fancy..... dis 60%
Oneida Halter Chain (old list)..... dis 45%
Galvanized Pump Chain..... dis 60%
Jack Chain, Iron..... dis 60% 10% 10%
Jack Chain, Brass..... dis 60%

CHALK.
White..... dis 60% 10% 10%
Red..... dis 60% 10% 10%
Blue..... dis 60% 10% 10%
White Crayons..... dis 60% 10% 10%

COTTON LINES.
Cotton Fish Lines..... dis 33%
Cotton Chalk Lines, 30 feet:
Nos. 11, 13, 15, 17, 20, dis 33%
3.50, 3.60, 4.00, 4.50, 5.25, dis 33%

CRIMES.
Socket Framing, Crossman..... dis 65%
Socket Framing, P. S. & W..... dis 75%
Socket Framing, Douglass..... dis 75%
Socket Firmers, Crossman..... dis 65%
Socket Firmers, Ohio Tool Co..... dis 65%
Socket Firmers, Douglass..... dis 75%
Socket Corner..... dis 75%
Tanged Firmers..... dis 40%
Tanged Firmers, Butcher's..... dis 40%
I. Merrill's Socket and Framing Chisel..... dis 65%

CLAMPS.
Iron, Screw, Eagle..... dis 50%
Iron, Adjustable, Stearns..... dis 20%
Iron, Cabinet, Sargent's..... dis 60%
Iron, Carriage maker's, Carr & Crawley..... dis 25%

CLIPS, AXLE.
Norway or Best..... dis 60%
Superior..... dis 45%
Conestoga..... dis 60%
Coal Hods—Griffiths..... dis 40%

COCKS, BRASS.
Racking, new list, July 10, 1880..... dis 60% 10% 10%
Globe, new list, July 10, 1880..... dis 60% 10% 10%
Plain Bibbs, new list, July 10, 1880..... dis 60% 10% 10%
Ale and Beer, new list, July 10, 1880..... dis 60% 10% 10%

COFFEE MILLS.
Parker's..... dis 45%
Wilson's..... dis 45%
Logan & Strobinger..... dis 45%
Enterprise Mfg. Co..... dis 25%

COMPASSES, DIVIDERS, AC.
Compasses..... dis 60% 10% 10%
Calipers..... dis 60% 10% 10%
Dividers..... dis 60% 10% 10%
Cook's Pencil..... dis 20%

COFFERS TOOLS.

Bradley's..... dis 25% 10% 10%
Barton's..... dis 25% 10% 10%

CROW BARS.
Cast Steel..... dis 40%
Iron, Steel Points..... dis 35%

CURLING IRONS, AC.
1/4, 3/4, 1 in., 1.50, 2.00, 2.50..... dis 10%
Curling Tongs..... dis 35%
Pinching Irons..... dis 75% 10% 10%

CURRY COMBS.
Fitch's new list..... dis 50%
Hotchkiss, Novelty, new list, July, 1880..... dis 25%
Hotchkiss, Excelsior Superior Champion..... dis 25%
Lawrence, "Perfect"..... dis 25%
Rubber..... dis 25%
Sweet & Clarke..... dis 25%
Lusters..... dis 25%

CURTAIN PINS.
Silvered Glass..... net
White Enamel..... net

CUTLERY.
Association (Table)..... net
Naugetuck Cutlery Co..... list net
Excelsior Knife Co..... net
Wilson's Butcher and Shoe Knives..... dis 30%
Ames' Shoe Knives..... dis 30%
Wm. Rogers Mfg. Co., Plated cutlery..... Net

DOO COLLARS.
Embossed Gilt..... dis 20%
Leather..... dis 25%
Brass..... dis 25%

DOOR SPRINGS.
Torrey's Rod, regular size, 1/2 dor., \$3..... dis 40% 10% 10%
Gem (Coil):
No. 1, Large Japanned..... dis 40%
No. 2, Medium Japanned..... dis 40%
No. 3, Small Japanned..... dis 40%
No. 4, "Shoo Fly" Screen door size, 1.50
No. 5, Screen door size..... dis 50%
No. 6, Medium..... dis 50%
No. 7, Large..... dis 50%
Standard—10 dor \$1.25; 9 dor \$1.75..... dis 60% 10% 10%
Hercules..... dis 50% 10% 10%

DRAWING KNIVES.
Ohio Tool Co..... dis 60% 10% 10%
Crossman's No. 1..... dis 65%
Nobles Mfg. Co..... dis 15%
Bradley's..... dis 35%
Adjustable Handle..... dis 20%
P. S. & W..... dis 70% 10% 10%
Douglass..... dis 75% 10% 10%

DRILLS AND DRILL STOCKS.
Blacksmith's..... dis 25%
Blacksmith's Self-Feeding..... dis 25%
Breast, P. S. & W..... dis 20%
Breast, Wilson's..... dis 20%
Breast, Millers Falls..... dis 25%
Breast, Bartholomew's..... dis 25%
Wilson's Drill Stocks..... dis 20%
Automatic Boring Tools..... dis 20%

EGG BEATERS.
Dover..... dis 25%
Medallion..... dis 25%
Victoria..... dis 25%

EMERY AND EMERY PAPER.
Regular numbers..... dis 60%
Flour and F. F..... dis 40%
B. & A. Emery Paper..... dis 30%
Kettles..... dis 60% 10% 10%

ENAMELED AND TINNED WARE.
Sauce Pans..... dis 45%
Tinned Sauce Pans..... dis 45%
Escutcheon Pins—Brass..... dis 50%

ESCUCTIONS.
Door Lock..... Same discounts as Door Locks
Brass Thread..... dis 25%
Wood..... dis 25%

FAUCETS.
Fenn's Cork Stops..... dis 35%
Star..... dis 55%
Frary's Patent Petroleum..... dis 20%
West's Patent Key..... dis 45%
Anchor Lock..... dis 45%
Metallic Key, Leather Lined..... dis 60%
Cork Lined..... dis 70%
J. Sommer's Best Metallic Key..... dis 40%
J. Sommer's Cork Lined, 1st quality..... dis 50%

FILES.
E. M. Boynton's..... new list, dis 25%
Western File Co..... dis 45%
Butcher's..... dis 45%
Moss & Gamble..... dis 45%
H. Diston & Sons (new list)..... dis 40%
Heller Bros.' Horse Rasps..... dis 30%
Nicholson..... dis 60%
New American..... dis 50%
Union File Co..... dis 45%
Stubs, new list..... \$7.50 to \$12.50 off

FLUTING MACHINES.
Knox, 4 1/2-inch Rolls..... \$3.50 each
Knox, 6-inch Rolls..... \$4.50 each
Eagle, 3 1/2-inch Roll..... \$2.50
Eagle, 5 1/2-inch Roll..... \$3.50
Crown, 4 1/2-inch, \$3.50; 6-inch, \$4.50; 8-inch, \$5.50
Crown Jewell..... 6-in., \$3.50 each
American, 5-in., \$3.50; 6-in., \$4.50; 7-in., \$5.50 each
Domestic Fluter..... \$1.50 each
Geneva Hand Fluter, White Metal, 1/2 dor \$1.25
Crown Hand Fluter, No. 1, 1/2; 2, 1/2; 3, 1/2; 4, 1/2; 5, 1/2; 6, 1/2; 7, 1/2; 8, 1/2; 9, 1/2; 10, 1/2; 11, 1/2; 12, 1/2; 13, 1/2; 14, 1/2; 15, 1/2; 16, 1/2; 17, 1/2; 18, 1/2; 19, 1/2; 20, 1/2; 21, 1/2; 22, 1/2; 23, 1/2; 24, 1/2; 25, 1/2; 26, 1/2; 27, 1/2; 28, 1/2; 29, 1/2; 30, 1/2; 31, 1/2; 32, 1/2; 33, 1/2; 34, 1/2; 35, 1/2; 36, 1/2; 37, 1/2; 38, 1/2; 39, 1/2; 40, 1/2; 41, 1/2; 42, 1/2; 43, 1/2; 44, 1/2; 45, 1/2; 46, 1/2; 47, 1/2; 48, 1/2; 49, 1/2; 50, 1/2; 51, 1/2; 52, 1/2; 53, 1/2; 54, 1/2; 55, 1/2; 56, 1/2; 57, 1/2; 58, 1/2; 59, 1/2; 60, 1/2; 61, 1/2; 62, 1/2; 63, 1/2; 64, 1/2; 65, 1/2; 66, 1/2; 67, 1/2; 68, 1/2; 69, 1/2; 70, 1/2; 71, 1/2; 72, 1/2; 73, 1/2; 74, 1/2; 75, 1/2; 76, 1/2; 77, 1/2;

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Hartford Silver Metal

We are now able to offer our customers a

Substitute for Solid Silver and Silver-Plated Ware

that is perfectly reliable and will wear a life-time. The points of merit of this new article are: the Metal is very nearly AS WHITE AS SILVER; it is the SAME METAL ALL THROUGH; there is NO COLORING OR PLATING ABOUT IT; it costs about ONE-THIRD as much as Silver-Plated Ware; with the same care it will give as good satisfaction as Solid Silver or Plated Ware.

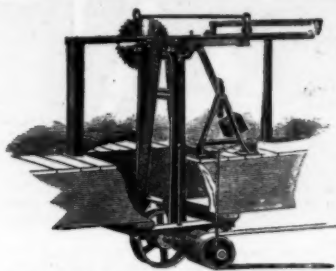
Don't Fail to Send for a Sample Lot of This Ware and Try It!

Our line of SILVER-PLATED HOLLOW and FLAT WARE is as extensive as ever. We are continually adding new designs, and should be pleased to submit them to our customers.

REMEMBER!

We Guarantee all Goods bearing our Trade Mark.

The WM. ROGERS MFG. CO.
Drawer 30, HARTFORD, CONN.



New Swing Cross Cut Saw,
with rigid iron frame and steel arbor. The frame is mounted on a heavy iron base, bolted to the joist under the floor. **Saw Mill Mandrels, Saw Machinery,** and all sizes of Saw Arbors.

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Vertical and Horizontal
BOILERS OF ALL KINDS AND SIZES.

WE HAVE IN STORE SEVERAL

**SECOND-HAND ENGINES
FOR SALE,**

And if you want Low Estimates on NEW
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JACKSON & TYLER,

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BALTIMORE.

Machinery, Tools and Supplies.

THE BRADSTREET

Mercantile Agency

HAS NOW BEEN

Under its present successful management for
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And during that time its business has more than
trebled, while its facilities have proportionately increased.

No expense is considered too great in obtaining
and applying to the conduct of the business
all possible improvements. With its present
system for obtaining and promulgating information,
this Agency is justly regarded by its
patrons as authority on all matters affecting
commercial credit. Its ramifications are greater
and its business larger than any similar organization
in the world conducted in one interest
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CHAS. F. CLARK, President.

Baltimore Office,—American Building,

H. KERSHAW, Supt.

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power. Boiler
wrought iron.



From 6 to 25 H. P.



Best CORN MILL in the World
for plantation and farm
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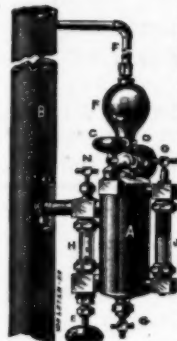


Stationary Engines from 6
to 100 Horse Power.
Portables from 6 to 25 H. P.

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**ENGINEERS and STEAM USERS
ATTENTION!** The celebrated Cyclone
Steam Flue Cleaners may be had at the
Supply House of **THOS. C. BASSHAW
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THE DETROIT Sight Feed Lubricators



Have revolutionized the
system of oiling valves and
cylinders of steam engines.
The oil is delivered through
the **SIGHT FEED GLASS**
drop by drop into the steam
pipe, lubricating perfectly
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valve down, effecting a sufficient
saving in oil and
wear of machinery to pay
for the Lubricator several
times a year. It costs
nothing to try them, as one
will be sent on thirty days
trial to responsible parties,
thus enabling a thorough
test to be made before paying
for the Lubricator. We
refer to 20,000 users, including
nearly all the leading
railroads.

CAUTION.

As these Lubricators are covered by patents owned
solely by this Company, parties should order only the
"DETROIT SIGHT FEED CURS," thus securing the
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Liberal discount to the trade.

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MACHINE LOADED Cartridges For Shot Guns.

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The highest explosive force of powder is dependent
very much on the amount of compression. This fact is understood by the Chamberlin
Company, who graduate their rammers to the
most advantageous pressure, which is applied
uniformly to all cartridges. In hand-loading
the amount of pressure in ramming can not be
gauged and no two cartridges are, perhaps, rammed
just alike; consequently producing
different results. A **UNIFORMLY** superior result
over hand-loaded shells will be apparent to
those who use this ammunition.

Although the machine was only invented
in 1884, yet the cartridges loaded by it are now
sold all over the country, and the demand is
rapidly increasing.

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Smoke Stacks, Water Tanks, Lard Kettles, &c.
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1837. NOVELTY WORKS. 1883.

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Machinery, Steam or Horse Power. Phosphate
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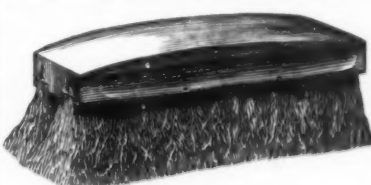
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respectfully invite your attention and court
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Drying and Burning Brick, Tiles and all
Earthen Products,—the Standard Process of
America, and without an equal in practical
results, saving of fuel and labor, avoiding all
waste, air-checked or damaged brick, so
common by the old crude methods employed,
in which the saving alone insures a good profit,
heretofore a total loss, a loss that no other
business would sustain; hence the assertion
that no business is more profitable than a
practical well arranged brick works reduced
to a system.

FOR PARTICULARS, ADDRESS,

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Post Office Box, 324,

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MANUFACTURERS OF

HORSE, SCRUB, STOVE

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White Wash Brushes.

These brushes are made from fibres only.
Strongly secured by heavy wire; stock laid
in grooves full length of block. **STRONGER,**
MORE STOCK and **MORE DURABLE** than any
other brush, and prices as low as any in the
market. Correspondence solicited.

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Combined with the famous Cook Strainer,
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Patented April 18, 1871. Reissued July 28, 1878.
OVER 6,000 IN USE.

Adapted for Warehouses, Stores, Factories,
Hotels, Public Institutions, and every place
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story to another.

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Sigourney Drill,

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10 inch Universal Hand Lathe

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Parties advertising in this column must have replies sent to their own address, and not to care of Manufacturers' Record, unless stamps are sent for forwarding replies. Advertisements sent not in accordance with this requirement will not be inserted.

WANTED—A person of experience and capable of taking charge of a spoke and handle factory; must be well recommended; one who could take a small interest preferred. Address J. H. D., Calera, Ala.

VALUABLE COAL PROPERTY FOR LEASE in Montgomery county, Va., two miles from railroad. Address Chas. C. Kasey, New River Depot, Va.

WANTED TO PURCHASE—A one-set or two-set Woolen Mill, with good machinery and good water-power, favorably located in some Southern State—Virginia preferred. Address Woolen Mill, care MANUFACTURERS' RECORD.

WANTED—A Partner, with some capital, to manufacture the Orr Gin, that has a good reputation. Location in the center of the best cotton region of Alabama. The shop and machinery ready for operation, near Selma & New Orleans R. R. Location is healthy, water good. Address Jas. F. Orr, Orrville, Ala.

WOOD-TURNER WANTED. For particulars address Plymouth Iron Works, Plymouth, N. C.

PARTNER WANTED—To take half interest in a box and handle factory; prospects for a good trade; timber and labor cheap. Address box 196, Shreveport, Louisiana.

PARTNER WANTED to take an interest in a patent atmospheric freezing machine. Cheaper, and requires less power than any other machine made. Mahlon Conly, 1415 North E Street, Richmond, Va.

SITUATION WANTED by a practical nickel-plater and polisher. Address Bowen-Merrill Co., Indianapolis, Ind.

A COMPETENT wagon expert wanted as Foreman in a wagon factory. To a man with the proper qualifications, good wages will be paid. Address J. M. Brosius, Superintendent Tyler Wagon Co., Tyler, Texas.

AGENTS (with references) wanted to sell furniture. Address South Carolina Bent Wood Furniture Co., Charleston, S. C.

A CABINET MAKER can hear of a good opening in this county. A splendid water power given away sufficient to run machinery. Also wagon-making and repairing. This is a good opportunity for a man of enterprise and small or large capital. Write to S. Worthen, Bakersville, Mitchell county, N. C.

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FURNITURE OPENING—A fine opening for a furniture business in a live North Carolina town, of nearly 10,000 population, and where there would be only one competitor. Splendid prospect for the manufacture of chairs and other furniture. Address, stating amount of capital you can invest, No. 329, care MANUFACTURERS' RECORD.

ENGRAVER WANTED—A young, unmarried, designer and engraver, of moderate talent, wanted. State amount of salary desired, &c. Address immediately, Oldham Publishing House, Winston, N. C.

TWO New England mill men, thoroughly understanding bleaching, dyeing and finishing cotton goods, desire correspondence with manufacturers as to localities in the South possessing advantages for starting this business, what inducements offered, &c. Address D. and B., care MANUFACTURERS' RECORD.

WANTED—A sober, energetic and competent man, with some capital, to take an interest in, and assume the treasuryship of a coal mining and shipping company in Alabama. His duties will be to attend to the sales of coal and coke, with office at Atlanta, Ga. A fine opening for the right man, with whom good terms will be made. Address Coal Co., care MANUFACTURERS' RECORD.

WANTED—At the Emily Mines, Spotsylvania county, Va., a first-class machinist, one who understands handling pumps and pumping machinery, keeping machinery in repair, &c. To a first-class man, first-class wages will be paid. No one who drinks liquor of any kind need apply. Address Thomas J. McSpieden, Superintendent, Mine Run, Orange county, Va.

WANTED—An active young man of experience in the manufacture of smoking tobacco. Must have \$4,000 to \$5,000, to join a gentleman of equal capital, to establish a manufactory South. Address Jones, care of Walton & Ewin, Nashville, Tenn.

PARTNER WANTED with \$5,000 to start a stove factory by parties representing over \$30,000 in real estate and having ample experience. A large profit can be made. Will guarantee the investment and 8% per annum. Address Enterprise, Lock Box 27, Warrenton, Va.

WANTED—A position in a sash and blind factory as foreman or master-workman; 12 years' experience; well up in all kinds of wood-working; can give best recommendations. W. T. L., care MANUFACTURERS' RECORD.

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WANTED—A partner with \$5,000 or \$6,000 to engage in a very profitable manufacturing business. Special inducements will be given to right party. Large demand and good profit. For particulars address H. L. Freeman, Concord, N. C.

I WANT a foreman for a furniture factory. J. H. Taylor, Greenville, S. C.

FOR SALE Cheap

A Superb 500 horse-power
Cornish Pump Engine,
with Three Capacious Boilers. Apply to

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RICHMOND, VA.

Get the Best at First.

The Holyoke Machine Company, of Worcester, Massachusetts, advertise in this issue their well-known Hercules Water Wheel. This wheel has many points of merit that strongly commend it to the attention of those who use water power. The most thorough tests have demonstrated its many good qualities. In Holyoke it is the standard water wheel, the aggregate horse power of the Hercules wheels in operation there being greater than that of all other wheels combined. These wheels are very popular in the South as well as in the North, having been in use for many years in a large number of Southern mills. There are four of the Hercules wheels now in operation in the big cotton mills of the Eagle & Phenix Manufacturing Co., Columbus, Ga., and Mr. John Hill, of that company, in writing, Feb. 25, 1885, to the Holyoke Machine Co., said: "Within the past four years I have ordered four 'Hercules' wheels, all of which have given the purchasers entire satisfaction. Three of the wheels are on regular duty in the Eagle & Phenix Mills. The first wheel ordered did so well that a 'Hercules' wheel has been added each time a new wheel was wanted. In the Eagle & Phenix Mills I supervise twenty water wheels of six different styles. The 'Hercules' is by far the most durable and best made wheel in use here, and, in fact, I know of no wheel its equal mechanically. It is all that can be desired in economy of water. In fact, it is a strictly first-class wheel in every way, and the wheel to buy, use and depend upon."

That is a pretty strong letter, but it is only a sample of letters received by the manufacturers of this wheel. Among the recent shipment of wheels have been two—one a 34-inch and one of 60-inch—to a Georgia cotton mill. Two Hercules wheels are being put in at Natick Cotton Mill, and one at the Arctic Mill of B. B. & R. Knight near Providence. This will make eleven wheels furnished to this well-known firm, one of the most prominent in the manufacturing line in New England. Hercules wheels are sold in England, Ireland and Scotland, and on the Continent, a cable order having been received only a few days ago for one to go to France. The manufacturers say: "The Hercules gives the most power for its size and the highest average percentage from full to one-half gate of any wheel ever made." Their advice to all users of water wheels is to "get the best at first." If you are interested in water wheels, if you want a new wheel or a larger wheel, or a better wheel than you are using, write to the Holyoke Machine Co., Worcester, Mass., for catalogue No. 3.

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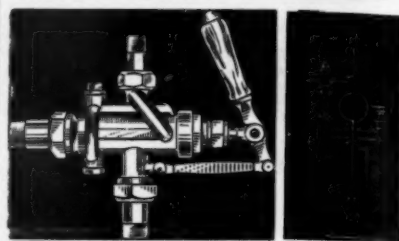
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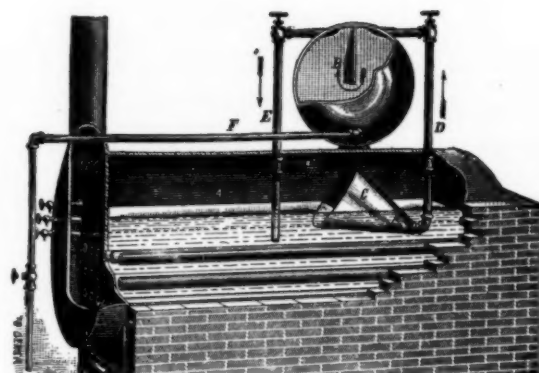
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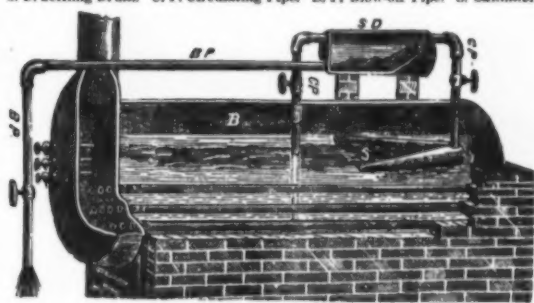


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If you will send me
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you an 88 page book,
free of charge, giving
useful information to
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more to follow. The
title of book is "HOW
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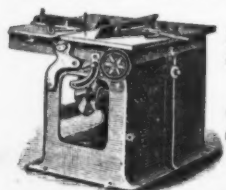
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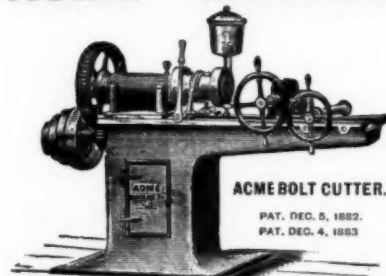
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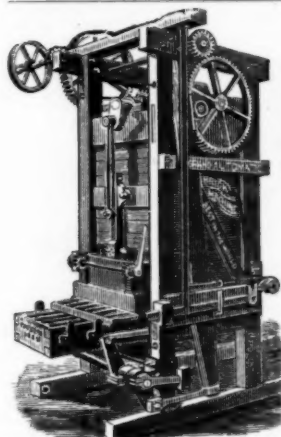


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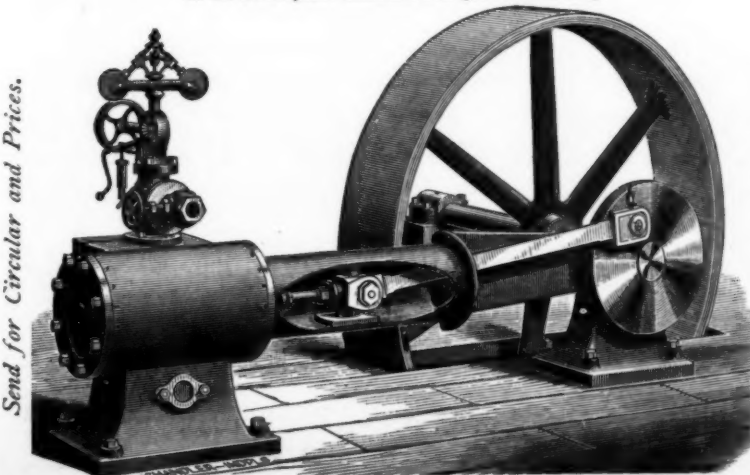
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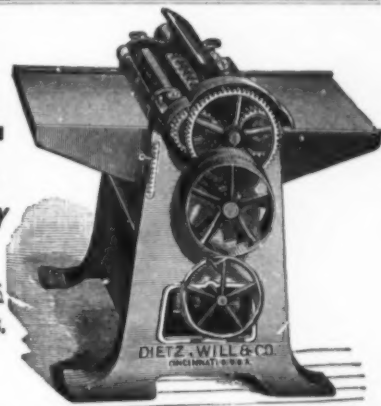
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Fig. 133.

Improved Steam Jacket Kettle

PLAIN OR ENAMELED.

SIZES.
20 Gallons.
35 "
70 "
100 "



Fig. 134.

Double Jacket Steam Kettle.

SIZES.
1 Gallons.
6 "
10 "
15 "
25 "
30 "
50 "
60 "
80 "
125 "



Fig. 136.

Iron Double-bottom Steam Kettle.

WITHOUT JOINTS.

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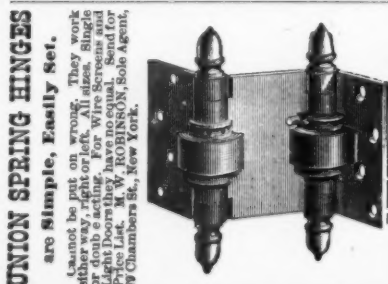
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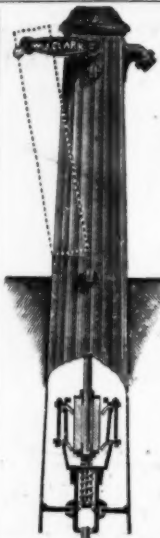
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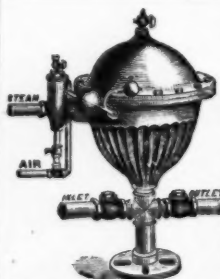
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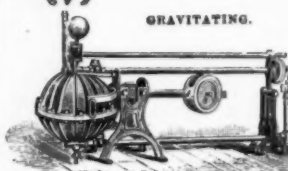
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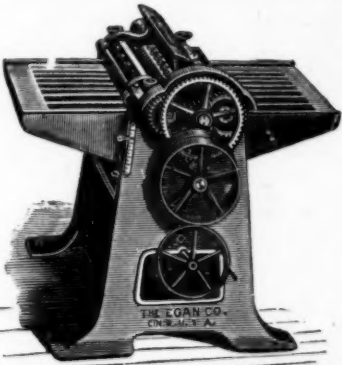
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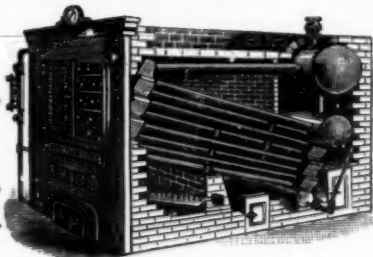
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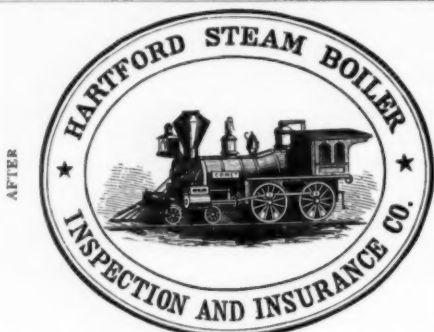
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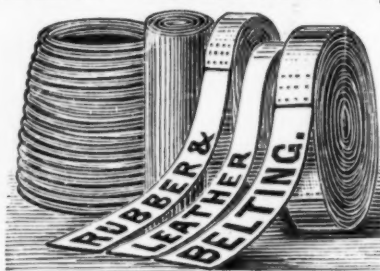
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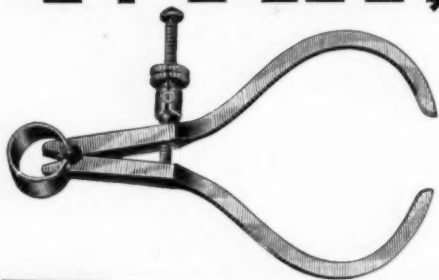
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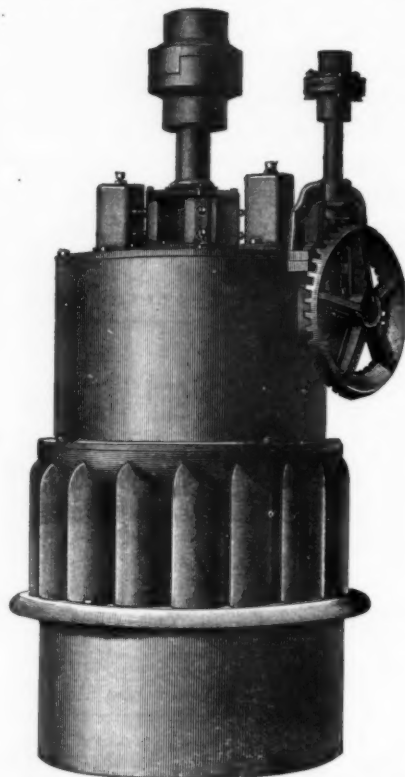
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Swain.....	1	160
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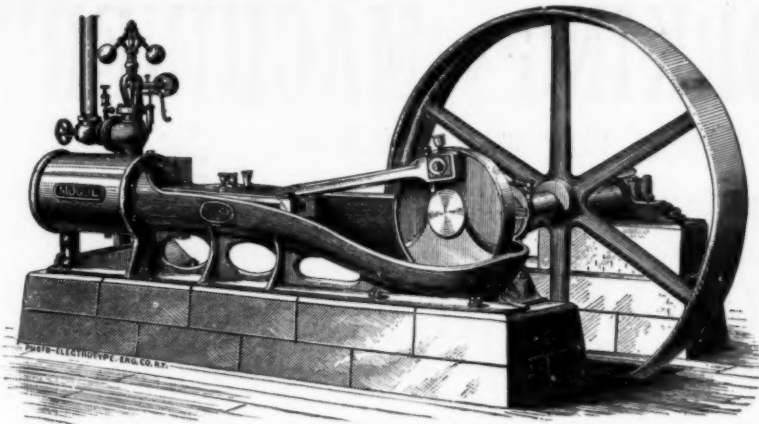
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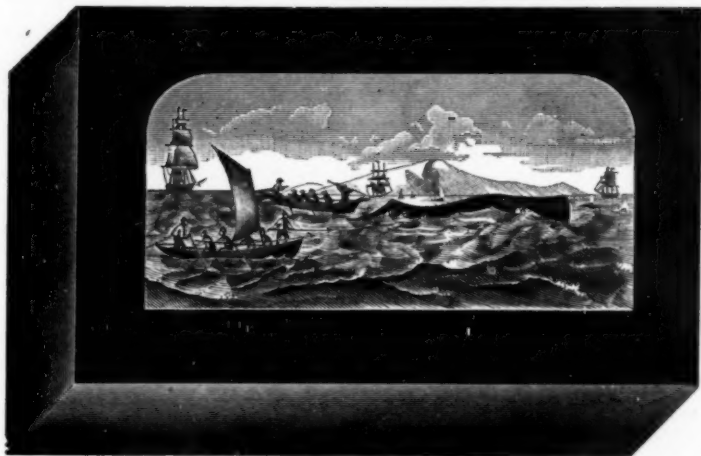
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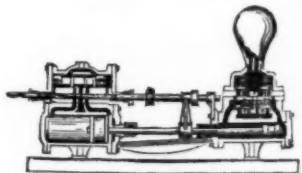
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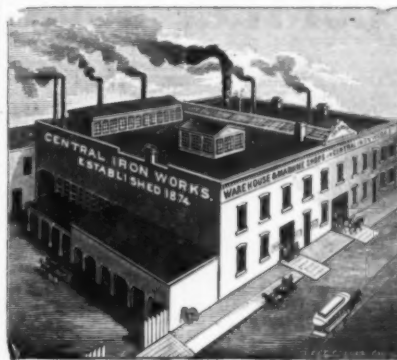
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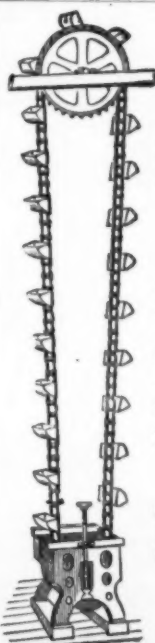
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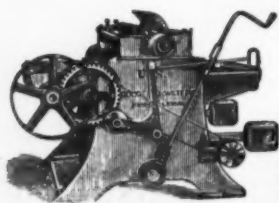
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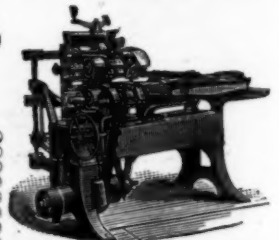
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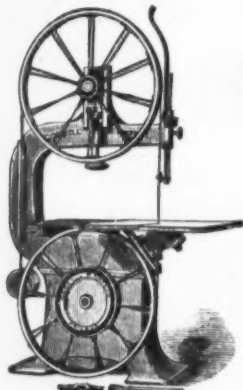


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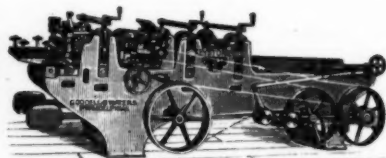
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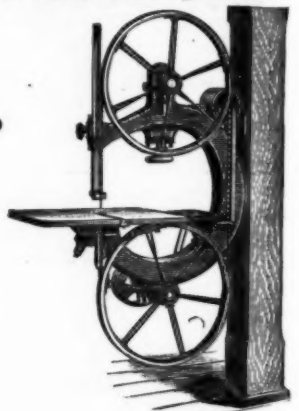
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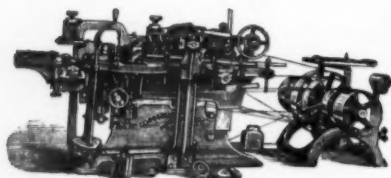


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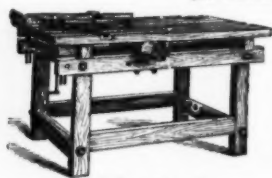
All our machines are war-
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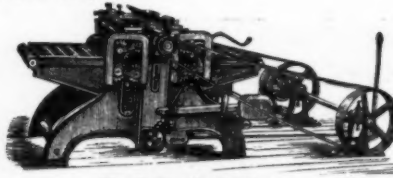
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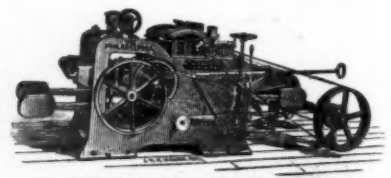
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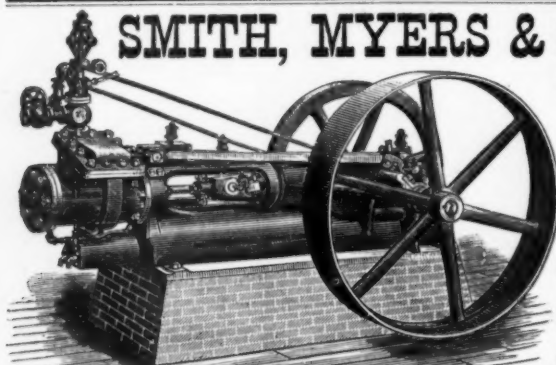
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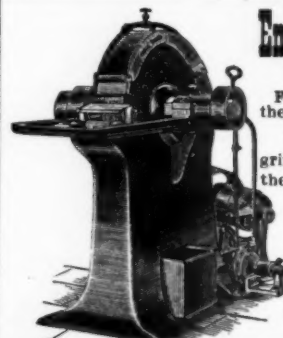
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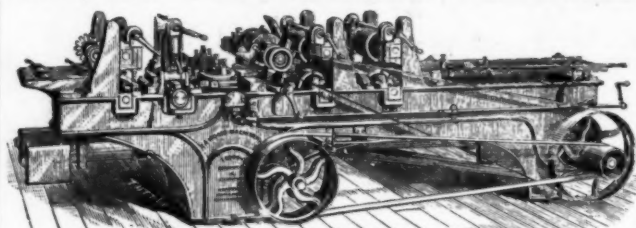


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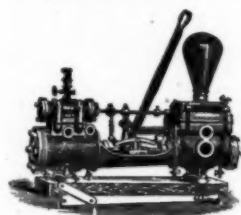
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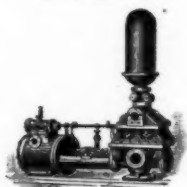
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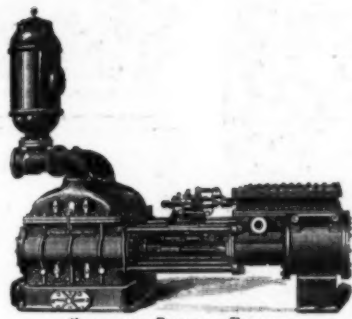


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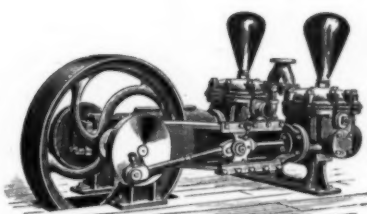


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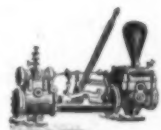
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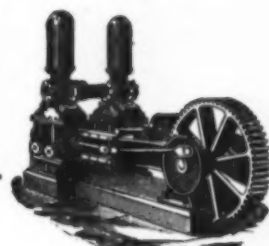
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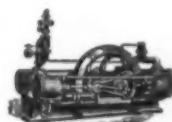
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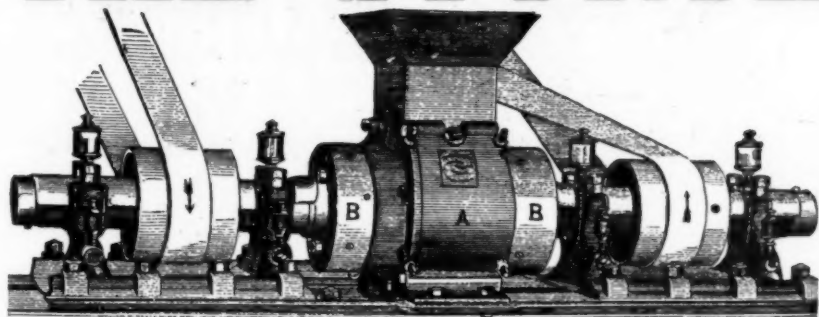
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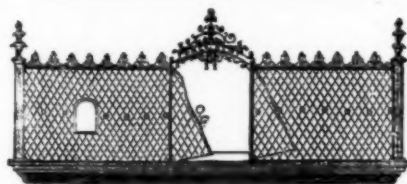
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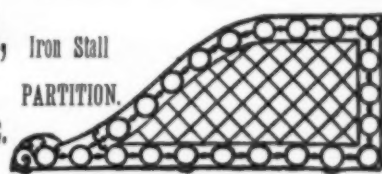
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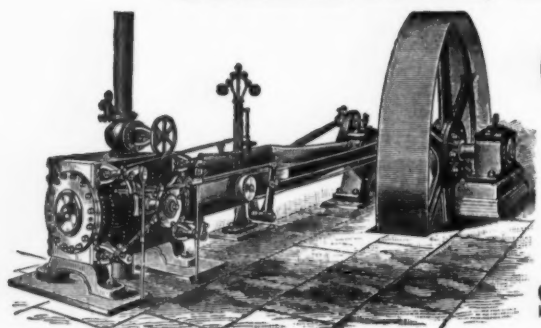
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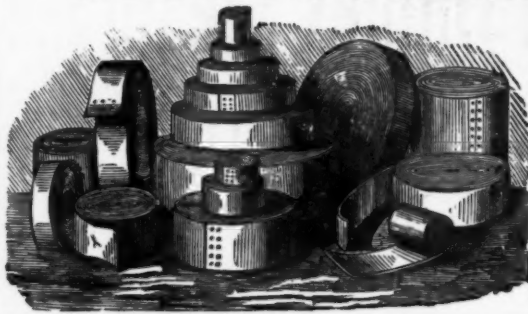
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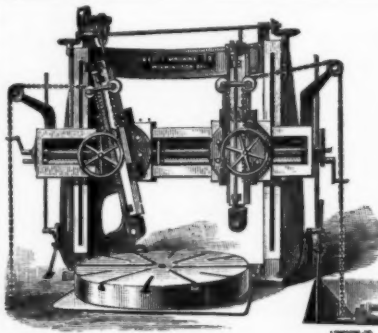
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